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PRESENTED BY
DR. A. S. WARTHIN.

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ANNALS OF INTERNAL MEDICINE

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DEPARTMENT OF REVIEWS

The Journal will make an especial feature of the review of monographs and books bearing upon the field of Internal Medicine. Authors and publishers wishing to subject such material for the purposes of review should send it to the editor. While obviously impossible to make extended reviews of all material, an acknowledgment of all matter sent will be made in the department of reviews.

Editor

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The Progress of Medical Research in the South*

By Dr. T. Z. Cason, *Jacksonville, Florida*

IN THE last decade the status of the internist has improved and his prestige has greatly increased. If we are to continue to improve and broaden our influence in relation to other groups, or if we are to retrogress, thus becoming only a minor part of the medical profession, depends on certain definite factors. The factors which probably have the greatest influence are: keenness of observation and the relations which we shall establish with the other departments of the science in which we are working, especially as these factors relate to research.

Already a considerable amount of pure medical research is being done by the non-medical investigator. There is no objection to this. Part of this research is being done in coöperation with, and part under the direction of the medical worker. On the other hand there is a great deal being done by the non-medical research worker without any medical connection. The problems upon which he works are of his own choosing and his methods of solution are of his own selection. Medical research should be done in well organized hospitals or in medical schools; that it is being done in colleges and universities without either hospital or medical college affiliations is due largely to the indifference of the medical profession to research. Here the sphere of influence of the internist should be broadened, which fact constitutes one excuse for this paper.

The etiology of a disease may be unknown; however the method of control and treatment may be well established. Conversely, the etiology may be known but the method of transmission or a specific treatment may be unknown. In either case they remain problems for research. When, as in the case of Pellagra, the etiology is not established, the method of transmission or control unknown and the treatment by no means settled, it becomes an important problem for the research worker, the internist and the economist.

I have selected four problems to present to you which are primarily, though not necessarily, Southern, the solution of which requires the closer association of the internists and four other groups; namely, the research worker, the surgeon, the economist and the public health authorities. The

*Read before the American College of Physicians, March 9, 1928, New Orleans, La.

first problem is that of energy metabolism and may concern the non-medical research worker; the second, one of human resistance which bears directly on the first, presents a problem for the internist and surgeon. The third is that of Pellagra, which in my opinion, is one for the internist, the medical research worker and the economist. The fourth is that of Dengue Fever, which should be solved by the internists and the group composing the public health authorities. The fact that there is, in the South, greater need for research and that there is less coöperation is all the more reason for increased stimulus.

In 1925, the Medical Department of Riverside Hospital began to observe that the basal metabolic rate of young people between the ages of fifteen and twenty-five was from twelve to eighteen percent below the accepted normal standards for individuals of this age. However, this work was not done under the exacting conditions acceptable to the research worker. Inquiries were started as to the possible correctness of this observation. In 1926, Tilt, at the Florida State College for Women, began the study of the basal metabolism of normal young women between the ages of sixteen and twenty-one. Her observations showed them to be from ten to fifteen percent below the normal standards of Dubois and Benedict. A. Ozorio de Almeida (1, 2), working in Brazil, showed that white subjects in the Tropics averaged twenty-four percent below generally accepted standards in the United States. He further showed that in one year one subject increased his metabolism from 22.7 calories per square meter to 32 calories by living a life of greater activities. Dr. Tilt has made observations on several young women who were assisting in the physical education department and were thus leading more active lives than the ordinary college student. She states: "Their metabolism approached more nearly the normal standards, averaging about six to eight percent below." She further states: "From the data which I have on about twenty to twenty-five subjects, I am of the opinion that the accepted standards of Dubois and Benedict, which have been compiled from data collected on normal subjects living in Northern sections of the country, probably cannot be applied to normal subjects who live in the South. However, we need considerably more data to prove this statement; hence more research needs to be done." Her investigations were done under conditions acceptable to the research worker and are to be published shortly. Corlette (3), working in Sydney, Australia, on the relation of climate, weather and fat covering to metabolism, concludes that "there is evidence tending to show that the basal metabolism of white men acclimated to living in the Tropics is much less than in colder climates." He bases his findings on his own investigations in Sydney where the conditions are very similar to our own and the findings of Lobato and de Almeida, already referred to. He further concludes, however, that "a thick layer of subcutaneous fat may have an effect on lessening metabolism comparable to that of a hot climate." This may account for the fact that

the metabolism in older persons more nearly approaches the normal standards of the North. Hafkeshing and Borgstrom (4) of New Orleans, investigating the subject, believe that the metabolism of individuals living in New Orleans is definitely lower than the standards, being from minus 14% to minus 18%. They state that the minimum value remains approximately stable from day to day but the time at which it falls varies according to the kind and quantity of food eaten. This led to further inquiry as to the protein intake, the blood pressure, as well as the non-protein nitrogen and urea retention in the blood in individuals living in the South as compared with those living in the North. In 1924, Denis and Borgstrom (5) of Tulane University reported the results on the protein metabolism of two hundred and thirty-three medical students over a period of three years. These results indicated that the average protein intake was lower than that observed for a similar group in New England. They suggested that this might be due to the warm climate, as it was noted that the average protein intake was much higher during the cold weather of February and March than during April and July. In 1927, Wang, Hawks and Wood (6) of the Research Laboratory, Michael Reese Hospital, Chicago, reported the results of their work on the influence of high and low protein diets on blood chemistry. Their work seemed to show that high protein diet produced a marked rise in both total non-protein nitrogen and urea nitrogen but that the values attained in a low protein diet were within normal range. Their concluding sentence is: "attention should again be called to the very high non-protein nitrogen values on the high protein diet." The inference, from their work, is that an individual on a high protein diet will show a marked retention of both total non-protein nitrogen and urea nitrogen, while one on a low protein diet will show but little variation from normal standards. This would indicate to me that the causes for low metabolism in the South and for low total non-protein nitrogen and urea nitrogen in the blood are unsettled. From a questionnaire sent to the different medical schools in the South, on the whole, comparatively little data with regard to the observations on metabolism were obtained. All answers indicated that the present standards for the non-protein and urea nitrogen in the blood of normal patients were suitable for the South. A few answers indicated that the metabolism of normal young people was from slightly to fifteen percent below the normal accepted standards. A few indicated that the metabolism was normal; however, a number did not answer the question. The Medical College of Virginia reported 15% minus; Florida State College 10% to 15% minus; University of North Carolina slightly below, while the Department of Bio-Chemistry, School of Medicine, Tulane University, reported that the standards now used were acceptable. Sufficient data were not obtained to verify the observations at Riverside Hospital of a lower blood pressure in certain of these cases where the basal metabolic rate was persistently low.

If, as one might infer from the results obtained thus far in connection with the correct metabolic standards in the South, the rate is lower among young people, then there arises the question of resistance to disease and the comparative operative risk in the South. Until the problems already presented are solved, this must wait. However, the surgeon and internist should make careful observations and both the surgeon and internist doing inter-change work in the North and South should keep this in mind.

The questionnaire on the subject of Pellagra, which is the third problem, was submitted to the Medical Schools and the State Boards of Health of all the Southern states. The first and a direct question was asked: "Do you know of any recent research work on Pellagra that would leave the question of etiology settled?" With but one exception, the answer was an emphatic "No." While the work of Goldberger (7) and his associates must be appreciated and its value recognized, in so far as solving the problem of the etiology of Pellagra, it has not. Harris (8) thinks Goldberger's experiments in Mississippi were not of great value and that food is of no more importance in the treatment of Pellagra than in the handling of tuberculosis or any other such disease. Jelks of Memphis, who has been interested in this disease for a number of years, denies emphatically that the work of Goldberger has proven anything with reference to the etiology of this disease. Both Harris and Jelks (9) are of the opinion that it is an infectious disease. It is an interesting observation that very recently authentic cases have been diagnosed in the native-born as far north as Philadelphia (10). The second question of the questionnaire related to the control of Pellagra which, in my opinion, is largely a problem of Economics, or, with Economics, a Public Health and medical problem. The answers to this question indicated that the control of Pellagra is a combination of the three, although they ranged from 75% a health problem to 100% a problem of Economics in the rural districts. It was generally agreed that the etiology was unknown and the treatment was unknown. Until the etiology is established, no adequate explanation can be made as to why a series of cases improves on any accepted dietary regime, while the next series will have a very high mortality under exactly the same treatment. Furthermore, results showed that in Mississippi, in the flood regions of Louisiana and in Texas, the disease is on the increase over the past few years. In the remainder of the South, it is on the decrease. Except for Texas, the increase can be explained by the recent flood in the Mississippi Valley. It thus becomes evident that considerably more research work must be done on this problem. M. L. Graves (11) of Houston, Texas, in answer to this questionnaire, after stating that it is a 50% question of Economics, further states: "all of them are poor people in poor circumstances." His answer was the only attempt to suggest a solution to the Pellagra problem. He states that: "100% Government or other surveys must be done by educated sanitarians and physicians with provisions for

proper food," and that "it is an industrial problem in which treatment is directed by physicians."

The fourth problem to be presented is that of Dengue Fever. So far, from the results of work done up to the present time, the etiology of this disease is not known. It is presumably a filtrable virus, 'though this has not been proven. The work of Siler, Hall and Hitchens (12) on Dengue Fever in the Philippines indicates that Dengue Fever is transmitted by the mosquito, *Aedes aegypti* Linnaeus. With equal positiveness, they prove that the Culex is not responsible. Their work on immunity is highly commendable but by no means conclusive. In Florida for a number of years Dengue Fever has occurred in epidemics. The interval between these epidemics is usually five to seven years, or sometimes longer. Furthermore, there are many authentic instances where one individual has had two or more attacks during the epidemic. Silver et al. have made similar observations. Their explanation for the occurrence of epidemics in the Philippines is that it is due to the rainfall, which in turn affects directly the breeding of the Aedes aegypti. The recurrence of the disease in the same individual they attribute to inability of the individual to develop immunity from one attack, while, on the other hand, some individuals will develop a life-long immunity from a single attack. Therefore, this within itself becomes a research problem as a part of the whole problem of Dengue Fever. Because of the very low mortality from the disease itself, too little attention is given to it as a medical problem. Following the last epidemic in Florida the sequelae assumed considerable proportions. For example the reactivation of previously arrested cases of tuberculosis was similar to that following influenza. The period of recovery was much longer than the severity of the disease would normally warrant. That this is also a serious economic problem is indicated in an unpublished statement made by the Jacksonville City Board of Health, following the last epidemic in Jacksonville, that the cost of drugs and medical fees alone during that epidemic was sufficient to have rid Jacksonville forever from all mosquitoes. In this disease, the control seems possible but it will take the co-ordination of the medical profession and Public Health authorities to bring this about.

Comment

From evidence at hand it is apparent that research in the South is not being done in proportion to that being done in the North. Further, it is evident that the internist, with but few exceptions, is not seriously interested in the doing of research work. His interest is confined to the end results that will help in the diagnosis or the treatment of his patient. He depends too often and too completely upon the research worker to solve all of his problems. This will undoubtedly result in a narrowing of vision and a dullness of perception on the part of the practicing internist. I can see no necessity for the four years medical training to prepare an individual for medical research, but it does seem to be evident that in every instance medi-

cal research should be co-ordinated and that it can be best done by a person with a medical as well as a practical training. It is suggested that co-ordination of research be carried to the extent that, in diseases bearing any relation to heredity, the biologists become a part of the consulting research corps. The answers to my questionnaire indicated that, except for the research work which is being done at Tulane University in New Orleans, which is of the highest type, there is no outstanding research work being done in the South.* Duke University is preparing to do considerable research, directed particularly at Southern problems. More or less research is being done in some of the other medical colleges but there are a few, both state and sectarian, where no attempt whatever on the part of the medical college is being made to do research, nor is any attempt being made to inspire the medical student with an inquisitive spirit which would lead him to take up these unsolved problems. In some instances the answers to the questionnaires indicated a lamentable lack of knowledge of both Pellagra and Dengue Fever on the part of those in authority in public health positions. Although the question was not asked, no reply indicated that either the absence of research or the small amount being done was due to finances. From observations made in medical centers in the East and Middle West, this would hardly be a legitimate excuse. The lack of research in so many medical schools, and the absence of the spirit that engenders it, possibly accounts for the lack on the part of the young doctor coming out of college and hospital possessing the desire to investigate thoroughly those problems difficult of solution. That, with the remuneration offered the successful physician and the poor proportional return to the research worker, possibly accounts for the few medical men undertaking pure research.

*This survey did not extend further north than Virginia.

Summary

1. The basal metabolic rate, in the South, for young people between the ages of fifteen and twenty-five is apparently below the accepted normal standards.

2. In the South resistance to disease and its significance in surgery may depend on the solution of the problem of metabolism.

3. The etiology, the method of transmission and the treatment of Pellagra are unknown.

4. The etiology of Dengue Fever is not established and the treatment is unknown. A method of control is known. As a medical problem it is of greater importance than is generally accorded the disease.

5. Medical research is being done by non-medical workers without proper medical supervision or co-ordination.

6. Medical schools, as a whole, are not inspiring the students with either the spirit or the desire for research.

7. There is not enough medical research being done in the South.

REFERENCES

(1) De Almeida, A. Ozorio: The Minimum and Basal Metabolism of Tropical Man of the White Race, J. de physiol. et de path. general, Par. 1920, xviii, 712.

(2) De Almeida, A. Ozorio: The Emission of Heat, the Basal and Minimum Metabolism of Tropical Men of the Black Race, J. de Physiol. et de path. gen., Par. 1920, xviii, 958.

(3) Corlette, C. E.: On Some Relations of Climate, Weather and Fat Covering to Metabolism, The Med. Journal of Australia, 1923, I., pp. 172-182, Feb. 17.

(4) Hafkeshing, R. and Borgstrom, P.: Studies of Basal Metabolism in New Orleans, Am. J. Physiol., 1926-27, lxxix, p. 221.

(5) Denis, W. and Borgstrom, P.: A Study of the Effect of Temperature on Protein Intake, Reprint from The J. of Biological Chemistry, 1924, lxi. No. 1, August, 1924.

(6) Wang, C. C., and Hawks, Jean E. and Wood, Agnes A.: The Influence of High and Low Protein Diets on Blood Chemistry, Reprint from the Proceedings of the Society for Experimental Biology and Medicine, 1927, xxv, 106-107.

(7) Goldberger, Joseph:

a. Pellagra, Public Health Reports, 1927, xlii: 2193-2200, Sept. 2.

b. Pellagra, Public Health Reports, 1927: xlii: 2383-2391, Sept. 30.

c. Pellagra, Public Health Reports, 1927, xlii: 2706-2725, Nov. 4.

d. Pellagra, Public Health Reports, Reprint No. 1062, pp. 297-318, Feb. 19, 1926.

e. Present status of our knowledge of etiology of pellagra. Johns Hopkins Univ. School Hyg., Balt., De Lamar Lect., pp. 128-153, 1927.

f. Present status of our knowledge of etiology of pellagra, Medicine, Balt., 1926, v. 79-104 (Charts).

8. Experimental pellagra-like condition in albino rat, Pub. Health Rep., Wash., 1926, xli, 1025-1029.

h. Pellagra-preventive action of dried beans, casein, dried milk, and brewers' yeast, with a consideration of essential preventive factors involved, Pub. Health Rep., Wash., 1925, xl, 54-80.

i. Study of pellagra-preventive action of tomato, carrot, and rutabaga turnip, Pub. Health Rep., Wash., 1927, xlii, 1299-1306.

j. Further study of butter, fresh beef, and yeast as pellagra preventives, with consideration of relation of factor P-P of pellagra and black tongue of dogs to vitamin, Pub. Health Rep., Wash., 1926, xli, 297-318 (charts).

k. Yeast in treatment of pellagra and black tongue; dosage and mode of administration, Pub. Health Rep., Wash., 1925, xl, 927-928.

(8) Harris, Seale:

a. Questionnaire: Progress of Medical Research in the South, Answers 1-2-3, b, 1928.

b. The Food Factor in Pellagra, Revision of paper read before the International Conference on Health Problems in Tropical America at Kingston, Jamaica, British West Indies, July 22 to Aug. 1, 1924, International Clinics, Jan., 1925.

(9) Jelks, John L.: Pellagra: Is Pellagra an Infection; Or Is Pellagra Due Solely to an Unbalanced or Insufficient Diet?, Reprint from J. of The Tennessee State Medical Assn., Nov., 1927.

(10) Klauder, J. V., M.D., and Winkelman, N. W., M. D., Philadelphia: J. of the American Med. Assn., 1928, xc, No. 5, pp. 364-371, Feb. 4. 1928.

(11) Graves, M. L., Houston, Texas: Answers to Questionnaire: Progress of Medical Research in the South, 1928.

(12) Siler, J. F. and Hall, Milton W. and Hitchens, A. Parker: Dengue: Its History, Epidemiology, Mechanism of Transmission, Etiology, Clinical Manifestations, Immunity, and Prevention, 1926.

Blackwater Fever*

By Eugene R. Whitmore, M.D., D.P.H., *Georgetown University, Washington, D. C.*

IT IS not my intention, and it is not necessary, to go into a general discussion of blackwater fever; and I have already discussed the general problem of hemoglobinuria elsewhere. I do want to stress the importance of examining the urine chemically for hemoglobin, and microscopically for hemoglobin casts and red blood cells, to be sure to differentiate hemoglobinuria from hematuria—two entirely different conditions. I also want to stress the point that, especially after the patient has vomited a few times, the vomitus in blackwater fever contains bright green flecks and shreds of mucus, and the liquid portion of the vomitus is tinged bright green: as the mother of one of the cases put it, "What he vomited was as green as the leaves on the trees."

In the earliest reports of this condition from this part of our country, the term "malarial hematuria" is used as the name of the condition; and as soon as it was recognized that the condition was a hemoglobinuria and not a hematuria, the term "malarial hemoglobinuria" is used as the name of the condition; an indication that the early American observers considered the condition as associated with and a part of malaria. Though a number of theories have been advanced to explain blackwater fever or hemoglobinuria in persons in the tropics or coming from the tropics, the belief has become more and more generally held that the condition is caused by chronic neglected malaria, especially of the subtertian type. In fact, so strong is the general belief today that malaria is far and away the commonest cause of hemoglobinuria in persons in the tropic or coming from the tropics, that one may say that blackwater fever is a synonym for malarial hemoglobinuria. Subtertian malaria is so commonly the cause of blackwater fever that many observers hold that this is the only type of malaria that causes the condition; though most observers admit that tertian or even quartan malaria could be the cause of the condition. There are reports of cases of blackwater fever in persons with tertian malaria; but too often, as in the recent report of Ciavaldini,* there is no record of examination of the blood. All who have worked with

*Read before the American College of Physicians, New Orleans, Clinical week, March 9, 1928.

*Ciavaldini, J.: Un cas d'hemoglobinurie chez une paludienne n'ayant jamais absorbe de quinine. Arch. l'Inst. Past. de Algerie, 1927, v, 48.

malaria know the danger of accepting a case of malaria in the tropics as a pure tertian unless there is repeated study of the blood. Failure to recognize this point has caused serious results in the use of a supposedly tertian malaria in a man from the tropics in the treatment of general paresis.

As malaria and malarial hemoglobinuria have been carefully observed in the hospitals of the Panama Canal for over twenty years, I want just for a minute to call your attention to the conditions there. Table 1, published by the Health Commissioner of the Canal Zone, shows the amount of malaria in the Canal Zone from 1905 to 1927 inclusive; and the figures

TABLE 1.—CASES OF MALARIA REPORTED TO THE HEALTH DEPARTMENT AMONG EMPLOYEES OF THE PANAMA CANAL AND THE PANAMA RAILROAD

Calendar year	Average force strength.	Cases.			Rate per 1,000.
		White.	Black.	Total.	
1905	16,511	.....	.....	8,483	514.0
1906	25,547	5,134	16,659	21,793	820.9
1907	39,238	7,973	8,682	16,655	424.5
1908	43,890	6,352	6,020	12,372	281.9
1909	47,167	4,347	5,822	10,169	215.6
1910	50,802	4,884	4,603	9,487	186.7
1911	48,876	4,175	4,812	8,987	183.9
1912	50,893	2,746	2,877	5,623	110.5
1913	56,654	1,477	2,807	4,284	75.6
1914	44,329	950	2,664	3,614	81.5
1915	34,785	606	1,175	1,781	51.2
1916	33,176	180	367	547	16.5
1917	32,589	127	346	473	14.5
1918	25,520	64	410	474	18.6
1919	24,204	103	649	752	31.1
1920	20,673	85	316	401	19.4
1921	14,389	70	144	214	14.9
1922	10,447	56	120	176	16.9
1923	10,976	57	155	212	19.3
1924	11,625	55	135	190	16.3
1925	12,180	84	246	330	27.1
		[1]77	[1]119	[1]196	[1]16.1
1926	12,732	58	121	179	14.1
1927	13,560	38	107	145	10.7

NOTE.—Number of cases from 1905 to 1913, inclusive, are those *admitted to hospital only*. Those shown in 1914, and since, are *all* cases, whether or not admitted to hospital.

[1]Excluding Bruja Point, where a gang of workmen (nominally Canal employees) was installing large guns for the Army in 1925. Over half these men acquired malaria in 5 months. Since then the area has been sanitated by the Army and very few cases occurred among these workmen in 1926 and 1927.

are eloquent testimony to the constant improvement in the control of malaria until, in 1927, there was the remarkably low rate of 10.7 per thousand. Table 2, compiled from the annual reports of the hospitals in the Canal Zone, shows the number of cases of malaria and of hemoglobinuria treated in the hospitals of the Panama Canal from 1910 to 1927. The diagnosis "clinical malaria" was discontinued in 1917, and the tabulation is a little different for the years following from what it was before

TABLE 2.—MALARIA TREATED IN HOSPITALS OF THE PANAMA CANAL, 1910-1917

	Employees only discharged from Panama Canal hospitals				Deaths of employees only			Total deaths in civilian population (including employees)			
	clin. mal.	sub. tert.	tert.	hgb-uria	sub-tert.	tert.	hgb-uria	clin. mal.	sub-tert.	tert.	hgb-uria
1910	249	4628	952	47	36	0	6	200	80	0	12
1911	2458	5421	836	86	25	0	15	210	69	1	26
1912	1666	3055	760	26	11	0	5	149	71	4	8
1913	994	2531	603	14	12	0	5	74	75	3	7
1914	908	1658	280	4	3	0	0	34	54	4	2
1915	495	838	221	3	2	0	0	0	53	0	3
1916	—*	—*	—*	—*	2	0	0	0	17	3	0
1917	—@	319	99	0	3	0	0	0	19	0	0

MALARIA TREATED IN HOSPITALS OF THE PANAMA CANAL, 1918-1927.

	Employees only discharged from Panama Canal hospitals			Military and Naval cases			Total deaths		
	sub-tert.	tert.	hgb-uria	sub-tert.	tert.	hgb-uria	sub-tert.	tert.	hgb-uria
1918	426	111	1	143	75	0	10	1	0
1919	611	235	2	167	93	0	5	1	0
1920	389	175	0	22	12	0	7	0	1
1921	157	136	2	59	78	0	4	2	1
1922	213	110	0	106	46	0	7	1	0
1923	351	99	1	43	29	0	8	0	0
1924	325	126	0	33	19	0	11	0	1
1925	471	149	2	27	25	0	7	0	1
1926	346	156	1	43	33	0	8	0	0
1927	257	127	2	32	31	1	8	0	0

*Figures not available from annual reports.
@"Clinical malaria" discontinued as a diagnosis.

that time. It is notable that the number of cases of hemoglobinuria decreased as the number of cases of malaria decreased. (The figures for 1905 to 1910 are not included here, as they are set forth in the masterly analysis by Deeks and James, which will be considered a little later.)

Last year I had an opportunity to study blackwater fever, especially in Cuba; and, to avoid any uncertainty as to whether blackwater fever in Cuba is the same as blackwater fever in other parts of the world, I have brought with me a specimen of the urine as it is passed by the cases, and I present some charts showing the course of the condition, with notes on the cases. Chart 1 is that of a typical case of blackwater fever in a 14 year old Cuban girl, in whom the blackwater began not over 10 hours before admission to the hospital (second attack). Chart 2 is that of a typical case of blackwater fever in a 16 year old Cuban boy, in whom the blackwater began 2 hours before admission to the hospital (third attack). The blood of case 1 was negative, of case 2 was positive, for malarial parasites on admission to the hospital. Chart 3 is that of a 12 year old Cuban boy, who died in less than thirty hours after the beginning of blackwater. Chart 4 is that of a fatal case in a 20 year old Cuban mulatto, who had blackwater for three days before entering the hospital. Chart 5 is that of a fatal case in a 49 year old Barbadian, who had blackwater 54 hours before entering the hospital. In the last two cases the blood was negative for malarial parasites on admission to the hospital and throughout their stay in the hospital.

Charts 6 and 7 are interesting. Chart 6 is that of a 37 year old Cuban man, who had two previous attacks of blackwater fever. His blood was negative for malarial parasites on admission to the hospital, and throughout his stay in the hospital; though subtertian gametocytes (crescents) were found in his blood during the survey three or four days before his admission to the hospital. This man came into the hospital complaining of pain in his back and of scanty urine, and developed blackwater fever in the hospital. He was given quinine on admission to the hospital. Chart 7 is that of a 4 year old Cuban girl whose blood contained subtertian gametocytes on admission to the hospital, and contained numerous rings the next day. Her temperature went up in a couple of days, she was given quinine to control the malaria, and after her temperature had returned to normal she had a mild relapse of her blackwater, without rise in temperature. A few days later she was given small doses of quinine without any disturbance.

My study was along two lines: (a) Epidemiological studies, and (b) Laboratory Studies. I propose here to say a few words about the epidemiological studies; the laboratory studies, which are, in the nature of things, somewhat technical, to be reported elsewhere. Believing that malaria is the underlying cause of blackwater fever, and with the mode of transmission of malaria known, a large part of my work was to look at the third side of what I have

called the epidemiological triangle, the susceptibility of the population. I propose to discuss this question of susceptibility under three heads: I. Racial Susceptibility; II, Family Susceptibility; and III, Individual Susceptibility.

I. Racial Susceptibility

All observers of blackwater fever note a difference in the susceptibility of different races to the condition; and always note that the colored races are less susceptible than the white races. As the conditions are commonly such that the native race is colored, and the foreigners are whites, it is often expressed as a greater resistance on the part of the native race, and is often explained as the acquirement of immunity in the native race.

The figures for different races are brought out in Deeks' and James' report on blackwater fever in the Panama Canal Zone, for the years 1905 to 1910; and Table 3 is a composite of their figures. The figures for the Americans are so modified by the better living conditions and the rapid turnover in this group that the figures do not express the relative susceptibility of the group. In the European and negro groups, it is certain that the negroes did not live under any better conditions than did the Europeans; yet the malaria rate, and the hemoglobinuria rate, are much lower in the negroes than in the Europeans. About three-fourths of the cases in Europeans were in Spaniards. Table 4 is a tabulation of the labor brought into the Canal Zone during the years 1905 to 1910. This shows that about three fourths of the Europeans were Spaniards, so there is no evidence of any difference in racial susceptibility among the European races. The tabulation does not enable us to determine anything as to differences in susceptibility among the negroes from different regions.

In Cuba I was able to study malaria and blackwater fever in a white race, native to the country, and to compare this race with the Haitian and Jamaican negroes. Here we have the condition of a large number of Haitian negroes brought into the country during the cane cutting season, and returning to Haiti when the cane cutting is over: they are in the country from about the first of January to some time in May. Malaria is common among these negro laborers, but blackwater fever is very rare. But among the native Cubans, blackwater fever is quite prevalent during the four months of March to June, and a few cases occur at any time during the year.

II. Family Susceptibility

Interesting differences in the prevalence of blackwater fever in different families were observed in Cuba. One family is worth reporting in detail.

Feria Family

Sixteen persons. Lived in Tacajó Viejo for years; the past two years in Mejia and Julia.

The grandfather is 70 years old; has lived all his life in Tacajó Viejo, and lives there now. Has had much fever, but no blackwater. His wife and children had much fever, but no blackwater.

Chart 1

Case No.

CLINICAL RECORD CHART

Name T L Age 14 yrs. Cuban. Admitted June 27/1927

Temp. 27 28 29 30 July 1 2 3 — July 4 5 6 7 8 9 10 — 11

Admitted 3:30 p.m. Sent Cuerpo Hospital Temp. ad. Blackwater 2 p.m. Temp. 99 a.m.

Pulse	36 124 / 40 132 / 36 120 / 32 120 / 36 128 / 32 124	32 120 / 32 116	32 120 / 28 116	28 120	28	28 124	24 128	24 128	24	24 76	24 96	24 84	24 84	24 80	24 88	24 84
Resp.										24 18	24 16	24 20	24 24	24 24	24 20	24 24
Stools	1	1	1	2	0	1	1	1	1	0	2 0	1 1	1 1	0 1	1 2	1 2
Urine																
Day of Disease	1	2	3	4	5	6	7		8	9	10	11	12	13	14	15
Diet Indicated	Liquid				Soup	Milk	Soft		Soft							Soft

Blood negative for Malaria upon entering hospital - Urine contains albumin (++), casts (+) and hyl (++). Ova of trichocephalus in stools.

Had blackwater about 10 hours before admission to hospital.

Chart 2

CLINICAL RECORD CHART

Name F M Age 16 yrs. Cuban. Admitted July 8, 1 F M

Temp. July 8 9 10 11 12 13 14 mp. 15

Admitted 3:30 p.m. Vomited yellow fluid this a.m. Th. Nightsweats X 8 7/8.

Pulse	36 100 / 32 132	28 120 / 28 112	28 128 / 28 140	24 128 / 28 124 / 28 128 / 24 124	28 112 / 28 108	24 104	24 98 / 24 92	24 88 / 24 96	24 88 / 24 80
Resp.									
Stools	450 c.c. black	450 c.c. 1 / 900 c.c. dark / 250 c.c. 2 / 250 c.c. dark	250 c.c. dark / 300 c.c. 1 / 525 c.c. 0 / 1050 c.c. dark	500 c.c. 1 / 175 c.c. 2	1305 c.c. 1 / 250 c.c. 2 / 150 c.c.	350 c.c. 1 / 1150 c.c. 0 / 300 c.c.	0 / 1300 c.c. 0	450 c.c. 0 / 1	
Urine	800 c.c. dark								1000 c.c.
Day of Disease	1	2	3	4	5	6	7	8	
Diet Indicated								Fluids	

Crescents in blood on admission to hospital. Had blackwater two hours before admission to hospital.

Chart 3

CLINICAL RECORD CHART

Name M Admitted July 28, 1927

Case No. 164

CLINICAL RECORD CHART

Admitted June 27, 1927

	11	12	13	14	15	16	17	18	19	20	21	22
Pulse	24 88	24 100 / 28 108	28 88 / 24 76	28 84 / 28 88	24 96 / 24 92	24 96 / 24 100	24 84 / 24 80	24 84 / 24 84	24 80 / 28 104	24 84 / 24 80	24 84 / 24 82	24 84
Resp.	2	0 2	2 2	1 1	1 1	1 1	1 2	1 1	0 1	1 2	1 1	1
Stools												
Urine												
Day of Disease	15	16	17	18	19	20	21	22	23	24	25	26
Diet Indicated	oft							Soft				

Pulse 100 at 2 p.m.

Digitalis 1 c.c. I.M.

Digifolin 1 c.c. I.M.

CLINICAL RECORD CHART

Name M

Admitted July 8, 1927

	16	17	18	19	20	21
Pulse	24 88 / 24 80	24 76 / 24 78	24 76 / 24 72	24 80 / 24 84	24 80 / 24 80	24 80
Resp.	0 1	1	1 1	0 2	2 3	2
Stools	clear		clear		clear	
Urine						
Day of Disease	9	10	11	12	13	14
Diet Indicated	id	Soft.				

Digitalis 1 c.c. I.M.

Pulse 100 at 2 p.m. P.M. I c.c. b.i.d.

Digifolin 1 c.c. I.M.

July 17, Blood negative for malarial parasites. no quinine up to this time.

CLINICAL R

Name M C Age 2

Temp.

June 28 29 30

Pulse	28/112	28 128 / 28 96	24 94 / 28 84	28 84 / 24 84 / 24 76
Resp.	28 100 / 28 96			
Stools	0	2	2	3
Urine	70 c.c. 1 dark	25 c.c. 2 dark	25 c.c. 2 dark	
Day of Disease	1	2	3	
Diet Indicated				

Admitted 6:45 P.M.

Blood negative on admission Hemoglobin ++

Name A

July

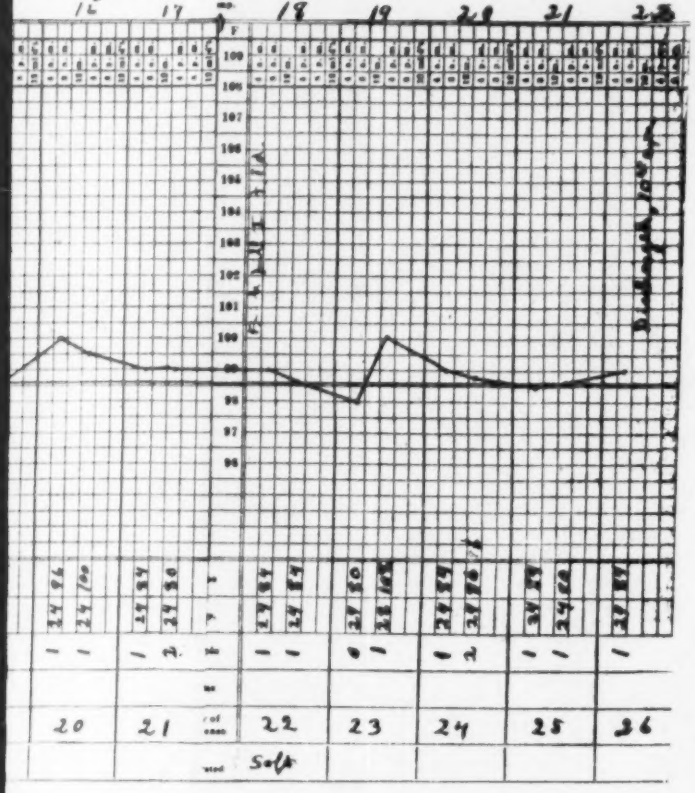
Temp.

Pulse			
Resp.			
Stools			
Urine			
Day of Disease			
Diet Indicated	Fl		

Case No. 164

CLINICAL RECORD CHART

Admitted June 27, 1927

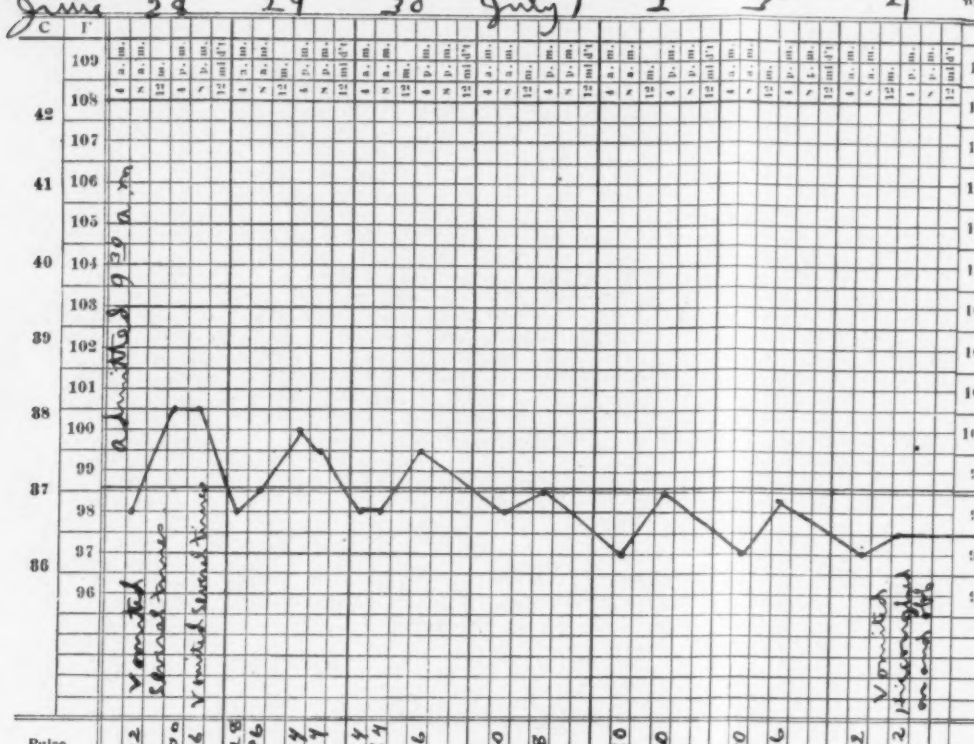


Day of Disease	20	21	22	23	24	25	26
Diet Indicated			Soft				

Chart 4

CLINICAL RECORD CHART

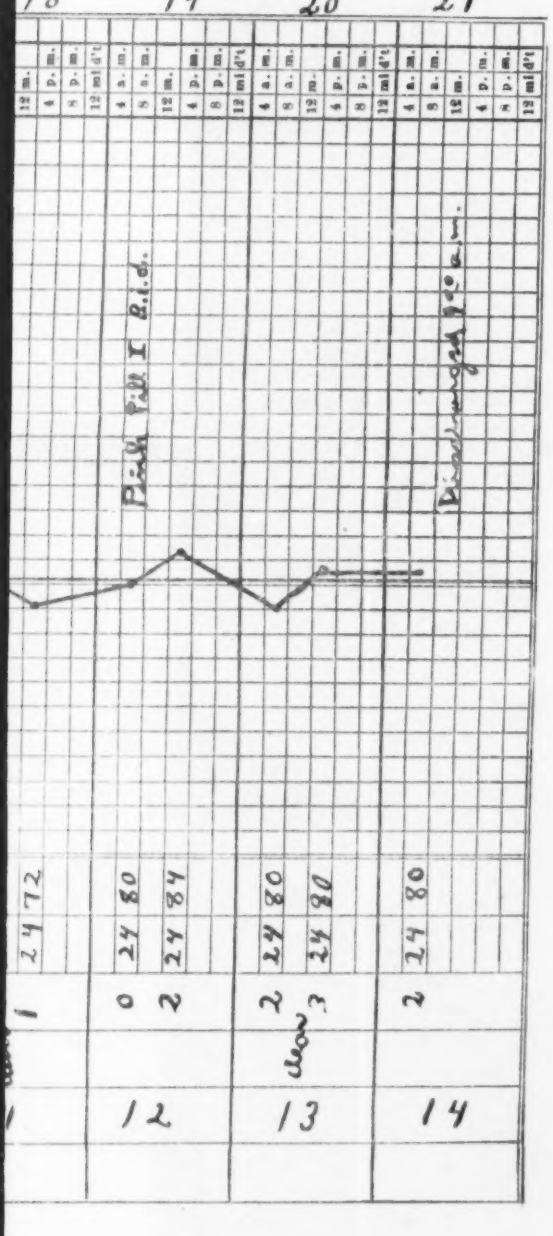
Name M C Age 20 yrs. Cuban mulatto. Admitted June 28,



Pulse	28/112 28/100 28/96	28/128 28/96 24/94 28/84	28/84 24/84 24/76	24/80 28/88	24/80 24/80	20/80 24/76	24/72 24/72
Resp.							
Stools	0		3	64 c.c. 0 Urine 3	25 c.c. 2 Urine 2 30 c.c. 2 Urine	0 60 c.c. 3 Urine	13 c.c. 3 Urine 4 23 c.c.
Urine	70 c.c. 1 Urine	25 c.c. 2 Urine 25 c.c. 2 Urine					
Day of Disease	1	2	3	4	5	6	7
Diet Indicated							

Blood negative for malarial parasites on admission.
Hemoglobin ++ in urine

Admitted July 8, 1927



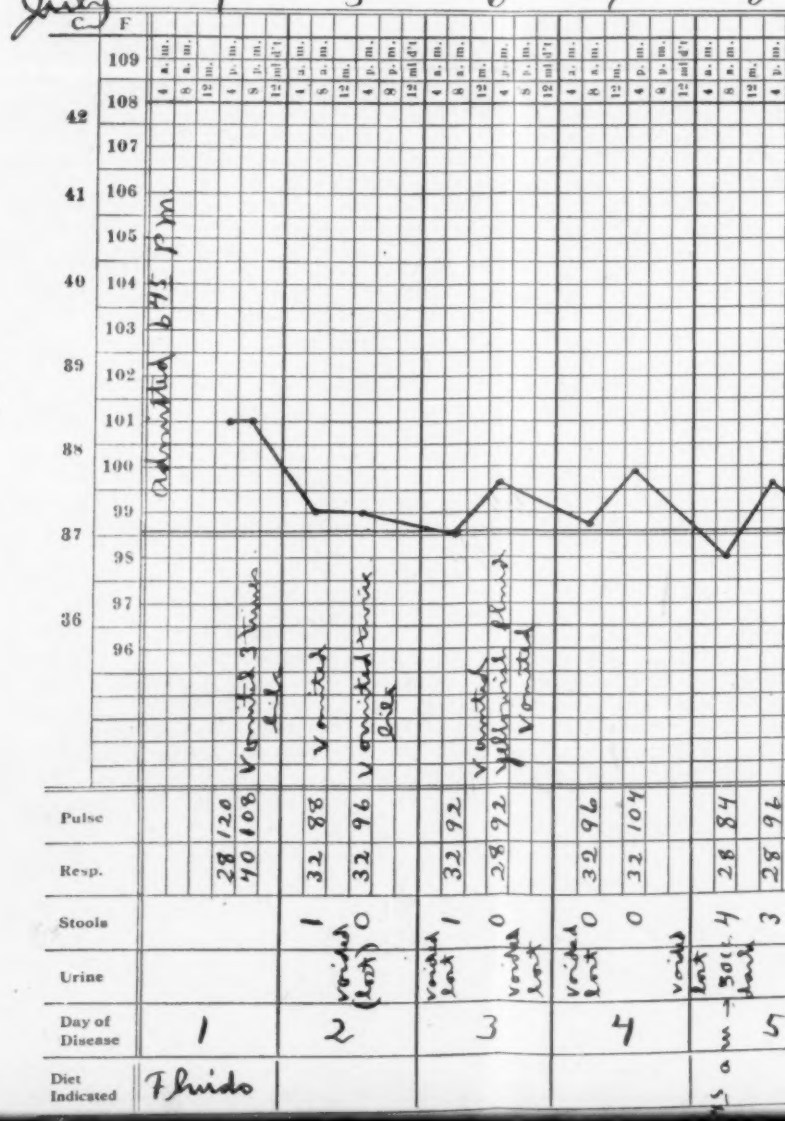
Day of Disease	1	2	12	13	14		
Diet Indicated							

for malarial parasites.
up to this time.

Chart 5

CLINICAL RECORD CHART

Name A N Age 49 yrs. Barbadian



Pulse	28/120 40/108	32/88 32/96	32/92 28/92	32/96 32/104	28/84 28/96		
Resp.							
Stools		1 Voided (last) 0	Voided last 1 Voided last 0	Voided last 0 0 Voided last	Voided last 4 Soft last 3		
Urine							
Day of Disease	1	2	3	4	5		
Diet Indicated	Fluids						

CLINICAL RECORD CHART

Case No. 16451

Admitted July 4, 1927.

Died at 3 00 P.M.

Had diarrhoea for three days before admission to hospital.

Catheterized at 7 45 P.M.

Vomited green fluid

Vomited green fluid

Vomited green fluid

Collapsed at

Died at 4 45 a.m.

Chart 7

CLINICAL RECORD CHART

CLINICAL RECORD CHART

CLINICAL

Admitted June 29,

Admitted June 28, 19

Diarr. persisted

Rash faint E. O.D.

Rash faint E. O.D.

Rash faint E. O.D.

Rash faint E. O.D.

Diphtheroid 10 a.m.

Relapses after 5 grains of quinine daily for two days.

Stools	450 c.c. Bloody 800 c.c. dark	450 c.c. dark 300 c.c. dark 250 c.c. dark	250 c.c. bloody 300 c.c. dark 825 c.c. dark 1050 c.c.	500 c.c. Clear 175 c.c. Cloudy	1305 c.c. clear 250 c.c. clear 150 c.c. clear	350 c.c. clear 1150 c.c. clear 300 c.c. clear 750 c.c.	clear 130 c.c. clear	e	450 c.c. clear 0 clear 1 100 c.c. clear	0
Urine										
Day of Disease	1	2	3	4	5	6	7	of ase	8	9
Diet Indicated								ted	Fluids	

Crescents in blood on admission to hospital.
Had blackwater two hours before admission to hospital.

July 1

CLINICAL RECORD CHART Chart 3

Name D H

Admitted June 29, 1927

Temp.

June 29 30

C F

42 109 108
41 107 106
40 105 104
39 103 102
38 101 100
37 99 98
36 97 96

Admitted 4:30 p.m.

Died 6:30 p.m.

Died 6:30 p.m. June 30, 1927.

| | | | | | | | | | |

clear 1	1	clear 1	0 2	2 clear 3	2
9	10	11	12	13	14
	Soft.				

y 17, Blood negative for malarial parasites.
no quinine up to this time.

	96						
Pulse							28 120
Resp.							
Stools							
Urine							
Day of Disease	1						
Diet Indicated	Fluid						

Blood neg. for
Urine: 8 VII da
27 to
Had blackwa
to hos

Case No. 180

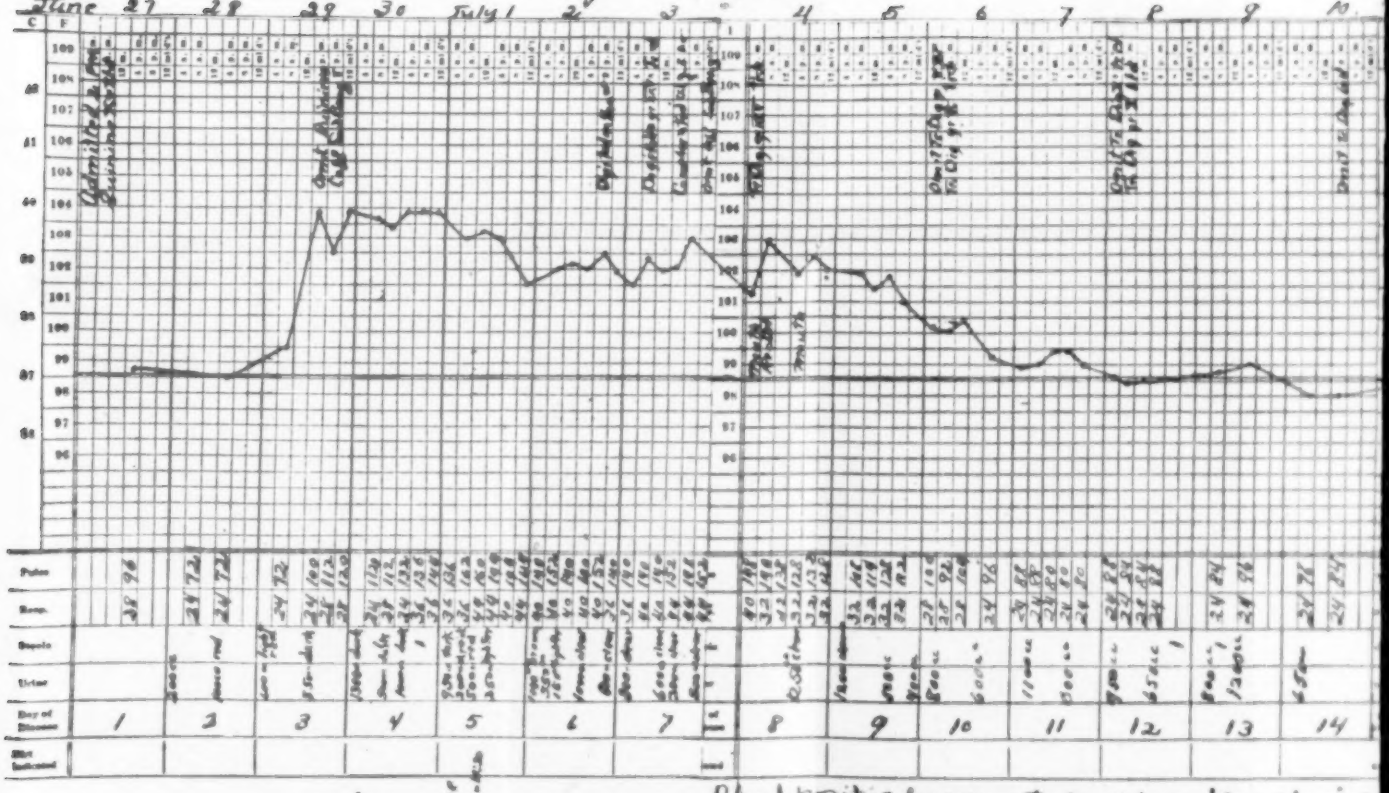
CLINICAL RECORD CHART

Name S T

Admitted June 27, 1927

CLINICAL RECORD CHART

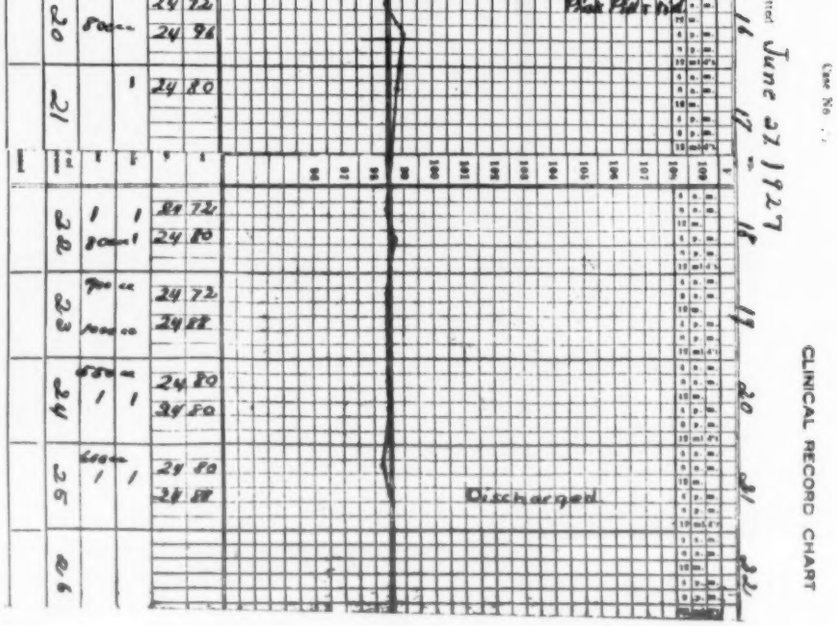
Admitted June 27,

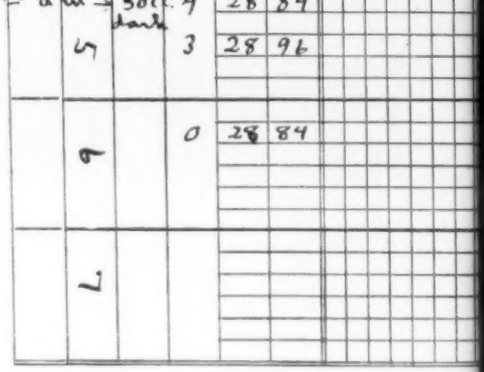

June 27
28
29
30
July 1
2
3
4
5
6
7
8
9
10
Admitted
Chill
Chill
Chill

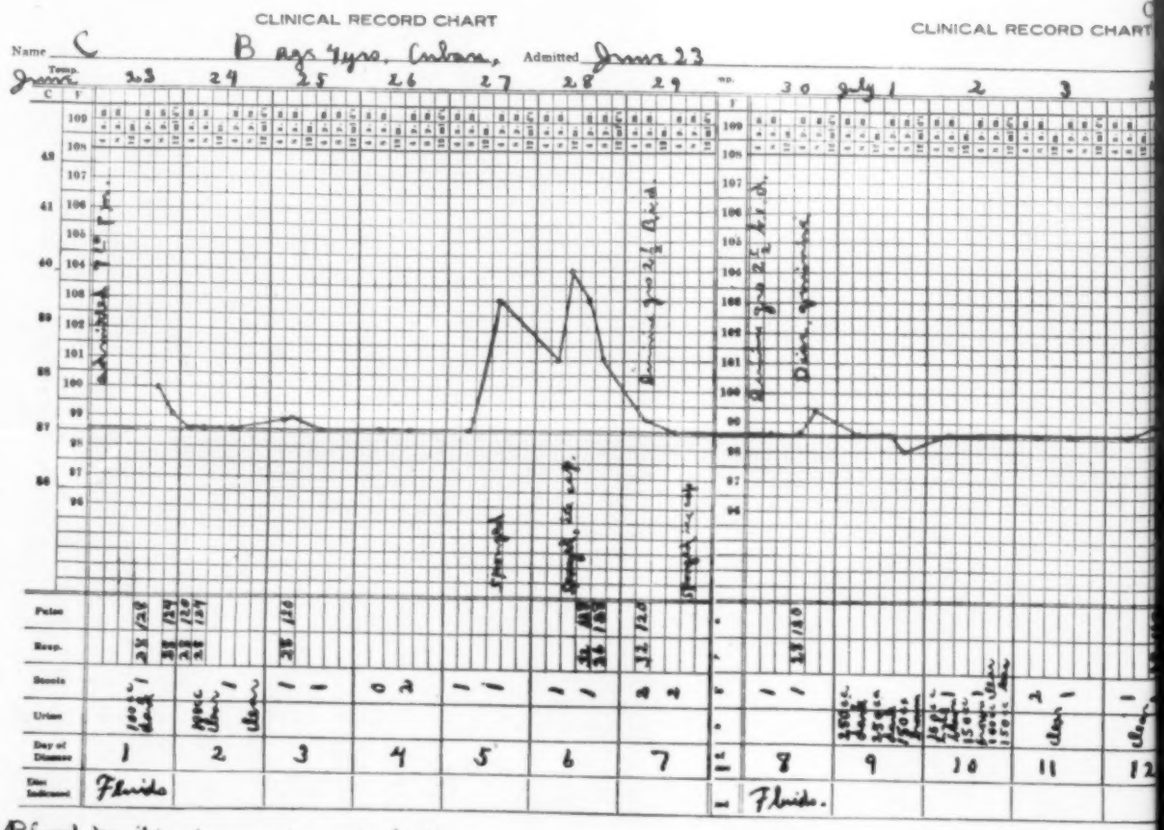
day 1	0 2	2 day 3	2
11	12	13	14

ative for malarial parasites.
ine up to this time.

| | | |







Blood positive for crescent on admission
Urine; albus. casts +, hyal ++.
Feces; ascaris

Relapses after 5 grains of qn
daily for two days.

TABLE 3

Year	Number of cases of malaria per year discharged from Ancon Hospital: Annual average number of employees	Total Number of cases discharged	Number of these cases positive	Malaria rate per thousand, based on total number of malaria cases discharged from Ancon Hospital	Number of deaths per year from malaria	Death rate per thousand per year from malaria	Number of cases of hemoglobinuric fever per thousand per year
	A. Americans						
1905	....	....	....	....	....	....	3.30
1906	5464	....	....	....	7	1.33	1.9
1907	6706	....	....	....	3	0.44	0.7
1908	6572	1004	262	152.8	4	0.60	0.39
1909	6056	1163	267	192.	0	0.	0.48
1910 to Sept.	....	571	169	....	....	....	....
	B. Europeans						
1905	....	....	....	....	....	....	5.
1906	2000	....	....	....	?	?	5.5
1907	4000	....	....	....	30	7.5	1.25
1908	5811	3786	2598	651.5	25	4.25	5.88
1908	5606	2658	1770	474.1	14	2.38	11.36
1910 to Sept.	....	1885	1128	....	....	....	....
	C. Negroes						
1905	....	....	....	....	....	....	0.33
1906	26,500	....	....	....	211	7.8	0.59
1907	28,634	....	....	....	146	5.11	0.28
1908	31,507	3747	2309	118.92	25	0.77	0.
1909	35,505	5159	3160	145.3	25	0.70	0.25
1910 to Sept.	....	2776	2025	....	....	....	....

Composite table of malaria and hemoglobinuric fever rates in the Canal Zone, 1905 to 1910, from Deeks' and James' Tables IV, V, and VII.

EXHIBIT 4.—CONTRACT LABORERS BROUGHT TO THE ISTHMUS BY THE ISTHMIAN CANAL COMMISSION

Country	1904	1905	1906	1907	1908	1909	1910	Total
Spain	.....	.....	1,181	5,291	1,750	.....	.....	8,222
Cuba	.....	.....	500	.....	.....	.....	.....	500
Italy	.....	.....	909	1,032	.....	.....	.....	1,941
France	.....	.....	19	.....	.....	.....	.....	19
Armenia	.....	.....	14	.....	.....	.....	.....	14
Total Europeans ...	.....	.....	2,623	7,424	1,750	.....	.....	11,797
Barbados	404	3,095	6,510	3,242	2,592	3,605	.....	19,448
Guadaloupe	.....	.....	.....	2,039	.....	.....	.....	2,039
Martinique	.....	2,733	585	2,224	.....	.....	.....	5,542
Jamaica	.....	47	.....	.....	.....	.....	.....	47
Trinidad	.....	.....	1,079	.....	.....	.....	205	1,284
Curacao	.....	.....	23	.....	.....	.....	.....	23
St. Kitts	.....	.....	933	.....	.....	.....	.....	933
Fortune Island	.....	.....	361	.....	.....	.....	.....	361
Total West Indians.	404	5,875	9,491	7,505	2,592	3,605	205	29,667
Costa Rica	.....	244	.....	.....	.....	.....	.....	244
Colombia	.....	1,077	416	.....	.....	.....	.....	1,493
Panama	.....	334	10	13	.....	.....	.....	357
Not classified	.....	.....	69	.....	.....	.....	.....	69
Grand total	404	7,530	12,609	14,942	4,342	3,605	205	43,432

The father, 46 years old, was born in Gibara, lived in Tacajó Viejo 39 years; came to Mejia 23 months ago (writing in August, 1927), and came to Julia 8 months ago. Has had much fever, but no blackwater. Has always taken quinine. His brothers and sisters had much fever, but no blackwater. Two nephews (sons of a sister) had blackwater in Tacajó Viejo, in the spring of 1927.

The mother, 42 years old, lived in Tacajó Viejo until 23 months ago. Has had much fever, but no blackwater. Always took quinine. She has three brothers, all of whom had much fever, and all had blackwater in Tacajó Viejo. She has two sisters; both have had much fever, but no blackwater. (The husband of one of her sisters died of blackwater).

The sons and daughters all have had much malaria.

One daughter (17 yrs old) had blackwater once (Mejia, 1925).

One daughter (16 yrs old) had blackwater twice (1 Tacajó Viejo, 1924, 1 Mejia, 1926).

One daughter (15 yrs old) had blackwater once (Mejia, 1926).

One daughter (11 yrs old) had blackwater twice (1 Tacajó Viejo, 1918, 1 Mejia, 1926).

One son (21 yrs old) had blackwater three times; died in third attack. (2 Mejia, 1926, 1 Julia, 1927).

One son (18 yrs old) had blackwater five times (2 Tacajó Viejo, 1922, 1924, 3 Mejia, 1926).

One son (13 yrs old) had blackwater once (Mejia, 1926. Had a relapse).

One son (12 yrs old) had blackwater three times (1 Tacajó Viejo, 1919, 2 Mejia, 1926).

One son (9 yrs old) had blackwater once (Mejia, 1926).

That is, 4 daughters had 6 attacks, and 5 sons had 13 attacks; these 9 children had 19 attacks (not counting relapses), all but one attack in the past 5 years. Five attacks were in Tacajó Viejo, 13 attacks were in Mejia, and one attack was in Julia.

Of the remaining children:

One daughter (4 yrs old) never had blackwater.

One son (21 yrs old) never had blackwater.

One son (16 yrs old) never had blackwater. Has had much malaria in Tacajó Viejo, Mejia, and Julia.

One son (8 yrs old) never had blackwater.

One son (2 yrs old) never had blackwater.

The husband, wife, and all children, have lived together and under the same conditions continuously.

I studied other families with several attacks in the family.

On the other hand, there are families who have lived next door to, or across the street from, some of these blackwater families, and have never had a case of blackwater in the family. The Lopez Family, of eleven persons, has lived for twenty-one years in one of the localities which, until the past year, had very high malaria and blackwater rates; but, though they have had much fever, and take quinine, there has never been a case of blackwater in this family. Several such families were studied.

It is realized that one must not draw conclusions regarding family susceptibility, at least until much more work has been done—and none are drawn. Malaria may be a house disease, as indicated by James' studies; and the apparent family susceptibility to blackwater fever may be only an expression of this tendency of malaria to be a house disease.

III. Individual Susceptibility

All observers note that a person who has an attack of blackwater fever is quite likely to have another attack. Thomson tabulates the number of attacks in 83 cases he studied in Rhodesia. In the 38 cases and subjects I studied in Cuba, the number of attacks per person was as follows (relapses not counted as attacks).

One attack	Two attacks	Three attacks	Four attacks	Five attacks
26	6	5	0	1

This tendency for a person who has had one attack to have another attack is quite frequently expressed as one attack predisposing to another attack.

Another common observation is that a person is likely to have an attack of blackwater in the first six to twenty-four months of residence in the malarious region, if he develops it at all; and this is quite commonly interpreted as meaning the development of an immunity to malaria after that time, with resulting freedom from blackwater. But there is no evidence of development of immunity in the subjects of blackwater fever; in fact, there is a recognized tendency to have repeated attacks, though, of course, most individuals have only one attack.

Blackwater fever is rather common in children in Cuba; but we find individuals having their first attack at all ages. Reference to the table of the Feria Family will show that some of the children had the first attack of blackwater when they were very young, others had the first attack after they

were 16 to 18 years of age, and some of them never have had attacks, though all have lived continuously together, and all have had much fever.

Further study of the individual involves extensive laboratory studies; and, as stated in the beginning, the results of the laboratory studies are being reported elsewhere.

The relation of quinine to blackwater fever has merely been touched on in a couple of the case charts; and this phase of the subject has already been discussed elsewhere.

Remarks

No conclusions are drawn, and the study is being continued. Nothing in the occurrence of blackwater fever in Cuba is inconsistent with the belief that it is caused by neglected chronic malaria, and everything observed there is in favor of that belief. There are striking differences in racial, family, and individual distribution of blackwater in Cuba; but much more information must be collected and studied before conclusions can be drawn. Everything observed in Cuba supports the belief that, along with other methods of malaria prophylaxis, the efficient and intelligent use of quinine in the treatment of malaria, and in malaria prophylaxis when required, does not increase the incidence of blackwater fever.

The Dietetic Management of the Diabetic in the Doctor's Office*

By W. H. Olmsted, *St. Louis, Missouri*

It hardly seems necessary to point out that the discovery of insulin has not changed the necessity for measuring the diet of the diabetic individual. Insulin has made diabetic diets more generous in the amount of carbohydrate used. This is most graphically shown by the improvement recorded in diabetic children. With insulin treatment and the resulting increase of carbohydrate intake normal growth and development are usually possible,—quite the opposite picture from the diabetic child of preinsulin days. Today there are two reasons why we must insist that the diabetic measure his food: First; because if insulin and diet are not nicely balanced, either the urine will contain sugar or the patient will experience those very disagreeable reactions accompanying hypoglycemia. Second; definite improvement in tolerance, indicating the increased ability of the patient to produce insulin himself, only follows after years of keeping the urine free of sugar. We have seen no improvement in those cases taking insulin and at the same time constantly showing sugar in the urine. The taking of insulin is no insurance against the danger of infection when the urine contains sugar.

Granting then that today, as in the past, our diabetics must keep sugar free, it follows that they must measure their food. The physician must assume the rôle of teacher of dietetics. Through his instruction the diabetic should learn two things: First how to measure the diet, and second, how to estimate its sugar value.

Our present methods of educating the diabetic depend somewhat on whether he is hospitalized or educated by the physician in his office. If the physician decides the case is one he can manage in his office, the patient is usually given a diet list. The carbohydrate food is limited to 5 and 10 per cent vegetables with the addition of a small amount of bread or gluten bread. Little or no effort is made to control the protein or fat.

If the patient is hospitalized, his diabetic education is undertaken by the hospital dietitians, who depend on one of the many excellent manuals for an outline of instruction. The patient is taught to weigh his food. The metric system of weights and measurements is employed. He is taught that he must eat so many grams of the 5 per cent vegetables; so many of 10 per cent; so many grams of meat and butter,

*Read before the American College of Physicians, March 8, 1928, New Orleans, La.

and so many c.c. of orange juice. If the patient is intelligent enough, he can be taught to calculate in grams and cubic centimeters the proper amounts of carbohydrate, protein and fat for the day.

In the daily use of these commonly used methods we have encountered in both hospital and office very practical difficulties. The first of these is in the use of the metric system of measurement. The metric system is only thoroughly understood by those having high school or college education; the great mass of the people in this country are quite unfamiliar with it. Physicians using this system constantly in their work fail to appreciate how difficult it is for the housekeeper dietitian to fully understand it. Those familiar with metric measurements have no difficulty in visualizing subconsciously the meaning of grams and cubic centimeters. But a woman, called upon to learn the metric system when she has reached the age of forty or fifty years, often fails to get a subconscious familiarity with these weights and measurements. Grams and cubic centimeters do not call to her mind an exact visual image of the quantity. Young people have less difficulty familiarizing themselves with this system. We often call on the younger members of the family to learn the calculations and weighing of the diet for the older diabetic. This is very often a splendid way out of our difficulties. I am impressed, however, with the necessity of fitting our education to the diabetic himself. Parents are rather apt to resent the dictation of sons or daughters as to the character and quantity of their diet. The diabetic himself must always understand the quantitative measurement of his food. There can be no doubt whatever that those with enough education to fully grasp and use with facility the metric system of measurement should be taught quantitative dietetics by that method.

Another difficulty that has impressed us is the manner of presenting food values. Our tables of food values are stated as the per cent of protein, fat and carbohydrate which each food contains. There is no other scientific way of presenting this data. But how many mothers know what is meant when one says that orange juice contains 12 per cent of carbohydrate. Our housekeeper dietitians are not called upon daily to think of percentage as the man in his business life is required to do. Suppose one says to the average mother or wife of a diabetic that a glass of orange juice contains 24 grams of carbohydrate. She looks at you rather blankly. Then you may hasten to say that 24 grams of carbohydrate is equal to 6 level teaspoonfuls of sugar. The latter statement calls forth a smile of understanding. The decimal system is taught to children in the fifth grade of the public schools and the metric system still later. Have we any way of teaching diabetics with less education to measure and calculate their diets? Or must we turn school teachers and teach them what they have not learned at school? Enough has been said to show that the housekeeper, engrossed for the most of her life in family cares, even if she has had the minimum of education, must be reeducated if she is to think of

food in terms and quantities long ago forgotten.

Because of these difficulties, encountered in the dispensary, hospital and office, we concluded that we needed a rough classification of our diabetics according to their ability to acquire dietetic education. We therefore divided them into three groups: The first group, those seen in the dispensary, who have practically no education and some of them unable to read. These form a group presenting real difficulties. The second group is composed of those with better than third grade public school education; they are usually mild diabetics and are often overweight. This class of patients go to the physician's office. They are not really sick and are unwilling to leave their work for a stay of several weeks in a hospital. They are reluctant to be reeducated into the metric system of measurement and decimal calculations and if forced to weigh their food in grams soon give up in disgust saying "its all too complicated for a busy person." The third group is divided into three classes: the intelligent diabetics; the very severe cases, and the young patients. This group must be taught the decimal and gram system of calculation and measurement. It is not of this group nor the first group that I wish to speak, but of the second.

The modern housewife measures food by cupfuls, tablespoonfuls and teaspoonfuls. The cook books used make use of the standard one-half pint measuring cup; one of these may be found in almost any kitchen. They are marked one-fourth, one-half and three-fourths, one-third and two-thirds. We determined to make this cup our means of measuring food. We took as the unit of carbohydrate measurement a *level* teaspoonful (4 grams). The carbohydrate foods are presented in the manner shown in Table I.

TABLE 1
THE SUGAR VALUE OF FOODS STATED IN HOUSEHOLD MEASUREMENTS

GROUP ONE
Each Amount of Food Given Below Equals One Teaspoonful of Sugar

Asparagus	½ cup	Kohlrabi	½ cup
Beans, green (canned)	½ cup	Lettuce, loose	2 cups
Cabbage, raw	2¼ cups	Lettuce, compact in head	½ head
Cabbage, cooked	⅔ cup	Mushrooms	½ cup
Cauliflower, cooked	1 cup	Okra, cooked	⅔ cup
Celery, raw	1¼ cups	Pickles, sour	¾ cup
Celery, cooked	⅔ cup	Pumpkin, cooked	½ cup
Cucumber, sliced	¾ cup	Rhubarb, cooked	½ cup
Egg Plant, cooked	½ cup	Sauer Kraut, cooked	⅔ cup
Endive	2 cups	Spinach, cooked	½ cup
Greens, cooked (Beet, dandelion, mustard, turnip greens)	½ cup	Tomatoes, raw	¾ cup
		Tomatoes, cooked	½ cup
		Vegetable Marrow	½ cup

Bran Muffins, Recipe No. 2—2 Muffins
Cocoa, 2 level teaspoonfuls

GROUP TWO

Each Amount of Food Given Below Equals Two Teaspoonfuls of Sugar

Beets, cooked	½ cup	Blackberries	1 cup
Carrots, cooked	½ cup	Cranberries (cooked)	½ cup
Onions, cooked	½ cup	Grapefruit	½ cup
Parsnips, cooked	½ cup	Loganberries	1 cup
Rutabagas, cooked	⅔ cup	Strawberries	1 cup
Squash, cooked	½ cup	Watermelon	½ cup
Turnips, cooked	¾ cup	Crackers, Graham, 1 Cracker	

GROUP THREE

Each Amount of Food Given Below Equals Three Teaspoonfuls of Sugar

Apple, raw	½ medium	Milk, fresh	1 cup
Apple Sauce	½ cup	Milk, canned	6 tablespoons
Apricots	⅔ cup	Corn Flakes	½ cup
Cantaloupe	¼ medium	Crackers, Soda	2 crackers
Cranberries	½ cup	Cream of Wheat—	
Currants, fresh	¾ cup	Dry	2 level tablespoons
Gooseberries	¾ cup	Cooked	½ cup
Lemon Juice	½ cup	Oatmeal, dry	¼ cup
Oranges	½ medium	Oatmeal, cooked	½ cup
Orange Juice	½ cup	Puffed Rice	¾ cup
Pear, fresh	½ medium	Puffed Wheat	1 cup
Peach, fresh	½ medium	Rice, dry	1½ tablespoons
Buttermilk, fresh	1 cup	Rice, cooked	½ cup
Cream, fresh	½ pint		

GROUP FOUR

Each Amount of Food Given Below Equals Four Teaspoonfuls of Sugar

Beans, Lima	½ cup	Cherries	⅔ cup
Bread (any kind)—		Grapes	⅔ cup
½ x 4 x 3¼ inches	1 slice	Plums, fresh	1 cup
Peas	½ cup		

GROUP FIVE

Five Teaspoonfuls of Sugar		*Nine Teaspoonfuls of Sugar*	
Banana	½ cup	Apricots, dried	⅓ cup
Bran	½ cup	Figs	½ cup
Corn, canned	½ cup	Peaches, dried	⅓ cup
Pears, canned, no sugar	½ cup	Pineapple, canned	⅓ cup
Potato	1 medium	Prunes, dried	¼ cup

The carbohydrate value of each group of foods is stated in teaspoonfuls at the top of each group; the amount of each food equivalent to the stated amount of carbohydrate is presented in fractions of cupfuls after each food. The physician prescribes the amount of carbohydrate to be

taken at each meal as the equivalent of so many teaspoonfuls of sugar. The patient chooses the foods available in such amounts as will make up the number of teaspoonfuls of sugar prescribed. The only education necessary is the ability to add such simple fractions as fourths, halves and thirds.

The unit of measurement for protein is one hundred grams. In order to express this amount in simple language we have chosen the word "serving." One "serving" of such meats as can be measured equals one-half cupful. In speaking of such meats as are served in cuts, the size is given, thus:

Very thin (as boiled ham is sliced), size of small plate

Thin (about ½ inch thick), two by five inches

Thick (about one inch), two by four inches.

The protein foods are divided into two groups: The lean protein foods and fat protein foods:

TABLE 2

GROUP SIX

THE ALBUMINOUS FOODS

Lean Meats and Other Foods Which Contain Much More Albumin Than Fat

Beef—Steaks
Cheese, Cottage
Chicken, Spring
Egg White
Fish
Kidney
Lamb—Leg
Liver
Mutton—Leg
Sweetbreads
Veal

GROUP SEVEN

Fat Meats and Other Foods Which Contain as Much or More Fat Than Albumin

Beef Tongue
Cheese—except Cottage
Chops—Lamb or Pork
Egg Yolk
Ham
Poultry—Duck, Goose, Fat Chicken, Squab, Turkey
Roasts—Beef or Pork
Sausage

GROUP EIGHT

THE FAT FOODS

Foods Having Much More Fat Than Albumin

Bacon
Butter
Cream—Single or Double
Lard
Oils—Mazola, Olive or Wesson

GROUP NINE

Nuts, Which Have Much Fat, but Also Much Albumin and Sugar

Almonds
Brazil Nuts (low in sugar)
Filberts
Hickory Nuts
Peanuts (high in sugar)
Pecans, unpolished
Walnuts, California
Walnuts, California soft shell

This arrangement is to facilitate the handling of the overweight diabetic and the one who is not overweight. Meat is the main source of fat for the normal person. In order to reduce a diabetic who is fat we must be sure that he eats lean meats. By this division of meats into a lean and fat group we can control the amount of fat eaten as meat. The protein content of meats does not vary sufficiently in the members of these groups to over-balance the practical value of considering all of the same value. Take, for instance, the commonly used meats of the lean group:

	Protein Per Cent	Fat Per Cent
Beef steak, loin	21	20
Chicken	19	16
Salmon, fresh	22	13
Lamb, leg	19	17
Mutton, leg	19	18
Veal	20	10

And for the fat group:

Beef, roast	18	25
Cheese, American	29	36
Ham, fresh	16	33
Lamb, chop	19	29
Mutton, chop	16	33
Pork, chop	16	32

The measurement of protein consists of giving the patient a serving of either group at two of the three meals.

For the unit of fat we have taken a "square" of butter. A square being about one and a quarter inches and one-half inch thick. In the cities we have quarter pound packages of butter for sale. Cut off one-half inch from one of these and one has what we call a "square" of butter. It is ten grams in weight.

TABLE 3

ONE SQUARE OF BUTTER EQUALS—
¼ cup of cream;
2 tablespoonfuls of double cream;
⅔ tablespoonful of mayonnaise;

TWO SQUARES OF BUTTER EQUALS—
½ cup of cream;
¼ cup of double cream;
1⅓ tablespoonfuls of mayonnaise;
1 strip of bacon;
2 teaspoonfuls of oil.
2 muffins;
2 strips of bacon;
1 tablespoonful of oil;
4 muffins.

THREE SQUARES OF BUTTER EQUALS—
⅔ cup of cream;
½ cup of double cream;
2 tablespoonfuls of olive oil;
3 strips of bacon;
6 muffins;
6 teaspoonfuls of oil.

FOUR SQUARES OF BUTTER EQUALS—
1 cup of cream;
½ cup of double cream;
3 tablespoonfuls of mayonnaise;
3½ strips of bacon;
2 tablespoonfuls of oil.

Table 3 shows how the fat foods (Group Eight, Table 2) may be interchanged for the sake of variety. Here is shown that the quarter cup of 16 per cent cream and 10 gram square of butter are interchangeable. The small amount of protein and sugar in cream does not amount to enough to be of importance in the fractional handling of this group of patients.

The physician, in prescribing the diet, specifies the amounts of cream, butter and meat to be taken so that the calories from fat will be supplied.

Table 4 shows the 2000 calorie diet divided into three meals. This table illustrates the method of preparing the stock menu by the aid of which the patient is able to work out his diet from day to day.

Table 5 illustrates five of our maintenance diets quantitatively stated in the practical units of measurement discussed.

The physician can increase the protein by increasing the lean protein foods. The fat is increased by using fat meats instead of lean and increasing the butter and cream. Carbohydrate is controlled by increasing or decreasing the number of teaspoonfuls of sugar.

TABLE 4

MENU

CALORIES, 2000

Morning	
Muffins, 2	Butter, 1 square
Egg, 1	Cream, ¼ cup
Bacon, 2 strips	Fruit, to equal two teaspoonfuls of sugar
Noon	
Muffins, 2	Butter, 2 squares
Meat, Group Six, ½ serving	Vegetables, Fruit or other food, to equal 4½ teaspoonfuls of sugar
Cream, ½ cup	
Night	
Muffins, 2	Butter, 2 squares
Meat, Group Seven, 1 serving	Vegetables, Fruit or other food, to equal 4½ teaspoonfuls of sugar
Cream, ½ cup	

Our first statement to the patient when starting the dietetic education is always this: "There is no food you cannot eat providing you measure it. You have a certain number of teaspoonfuls of sugar to spend for each meal; spend the amount for any food you wish." This statement centers the patient's mind on the sugar value of his diet. We insist that he put down in his note book how he has spent his allowance of sugar for each meal. The tables of carbohydrate foods are arranged so as to make this "spending" of sugar easy. The sugar value of each group is a constant amount, while the cup measurement of each food varies.

Our present arrangement of foods by percentage is the reverse of this: The amount of food, namely 100 grams, is constant, while the sugar value of the food varies. If one instructs a patient to take so many hundred grams of 3 per cent vegetables and so many hundred grams of 8 per cent vegetables, inevitably he gets the erroneous impression that these are the foods he is allowed. He forgets to measure his food because emphasis has been laid on a *Group of Foods* rather than on the *total sugar value* of the food consumed at each meal.

To me success or failure in teaching diabetics depends upon the ability of the dietitian to make the patient think in terms of a quantity of food representing a quantity of sugar. So in presenting carbohydrate foods we first try to impress the patient with the fact that he is to have a certain specified amount of sugar, and then show him how to transfer that amount of sugar into cupfuls of food. In this way we have eliminated the "bugbear" of having the patient eat all of the vegetables he wants because, as he says "they are allowed." In calculating each meal, the patient thinks first of the number of teaspoonfuls of sugar he is permitted to have, and then of how to convert that amount of sugar into available food.

The method has other advantages: No occasion can arise where the patient is at a loss what to eat. He can always find carbohydrate food. His problem is simply how much of those foods which are available he can

TABLE 5

SUMMARY OF MAINTENANCE DIETS
CUP—TEASPOONFUL

Calories	1800	2000	2200	2400	2600
Lean meat—serving	½	½	1	1	1
Fat meat—serving	1	1	1	1	1
Eggs—number	1	1	1	1	1
Bacon—strips	2	2	2	3	3
Butter—squares	5	5	5	7	8½
Cream—cups	¾	1¼	1¼	1¼	1⅓
Bran Muffins—number	6	6	6	6	6
Sugar—teaspoonfuls	10	11	12	14	14

	Protein Gms.	Fat Gms.	Carbohydrate Gms.
1800 calorie diet	50	150	55
2000 " "	50	175	65
2200 " "	60	190	70
2400 " "	65	220	80
2600 " "	70	235	80
Six bran muffins contain	5	30	10

1 cupful equals 230 c.c. or grams.
½ " " 110 " " "
¼ " " 50 " " "
⅓ " " 75 " " "

eat. This simplified method makes a splendid introduction to the more exact method of measurement. It can be taught to the average housewife in a half hour. Then after acquiring experience in the use of the measuring cup she can gradually be taught to weigh with scales by checking the amounts measured with a cup on the scales and finally calculating the content of these amounts of food in grams of carbohydrate.

The disadvantage of this scheme is that the measuring cup is at best a crude way of measuring. Let me emphasize again that its use is recommended only for a definite class of patients.

My purpose in presenting the results of efforts to educate diabetics is in the hope that you will appreciate the fundamental fact that success is attained only when the dietetic education is adapted to the fundamental education of the patient; his home conditions; his religion, and his willingness to coöperate. In our experience success is not attained when one tries to fit a patient to a set method of education.

The Treatment of Diabetes with Special Reference to Accessory Forms of Treatment

By WALTER M. BARTLETT, M. D., *Bernardsville, New Jersey*

UNDER ordinary circumstances it is simple to determine the specific value of a certain method of treatment of any common disease. The usual procedure is to set aside a group of cases which have been thoroughly investigated, employ the treatment in question in one half of the cases and not in the other half. The results are then compared by some suitable unit of comparison and the statistics resulting are presented to a group of competent judges for inspection and criticism. By this method the comparison is of value only to the extent of the validity and reliability of the unit of comparison. If the unit of comparison is precise and the statistics are significant there can be no question in regard to the conclusion. To prove the value of any therapeutic measure is therefore either simple or impossible. From a statistical standpoint the problem is always the same; from a clinical standpoint it may at times prove more difficult.

Primarily diabetes mellitus is a metabolic disturbance of unique nature. It is in part an intrinsic hereditary endocrine dyscrasia and in part an extrinsic disease due to obesity, characterized by primary failure of the carbohydrate metabolism and secondary anomalous fat and protein combustion. The natural progress of the disease is dependent upon an infinite number of variables. It is a disease whose course is influenced materially, in varying degrees, by heredity, race, weather, diet, digestion, exercise, body weight, temperature, circulation, civilization, age, habitus, and the emotions, as well as being dependent upon the proper function of all other metabolic processes in the human body. It is therefore a task to determine in a broad general manner the influence of one slight factor upon the variable natural course of the disease.

There are certain accepted methods of treating diabetes. The general laws relating to the treatment are agreed upon by the medical profession as a whole. There is considerable disagreement upon insignificant details in the treatment. These disagreements are unavoidable and necessary because it is impossible to prove the value of slight variations in the general treatment of this disease. It is necessary at this time to discuss the use of various accessory forms of treatment in diabetes. It is with the utmost cau-

tion that any positive statements as to the therapeutic value of these accessories will be made.

It is essential that the accepted methods employed in the treatment of diabetes be utilized in the fullest sense of the word before any accessory form of treatment can be scientifically utilized or fairly evaluated because of the exacting nature of the pathologic disturbance present. It is therefore essential also that the accepted methods be thoroughly understood before one can utilize or evaluate the accessory in question. To evaluate treatment it is first necessary to understand the course of the disease when untreated. To evaluate an accessory to an accepted treatment it is primarily necessary to understand the course of the disease when modified by the accepted form of treatment. When the individual variations in the natural course of the disease or in the course of the disease when modified by an accepted form of treatment are greatest, the more impossible it becomes to evaluate the accessory. Experience shows that the individual variation in the severity of diabetes is tremendous. Each case is a law unto itself. Likewise the response of the individual case to the general treatment used is quite as variable.

Before discussing the therapeutic value of any substance or method used in the treatment of diabetes it is advisable to enumerate the accepted treatment briefly. The primary importance of dietary regulation has long been recognized. The choice of a diet of the proper and optimum proportions of the three foodstuffs has filled many volumes of medical literature and has consumed much time in debate and discussion among members of the medical profession. It is quite universally accepted that undernutrition is the fundamental aim of all dietary regulation in the beginning of treatment of diabetes and few will deny that a reduction of the body-weight in obese diabetics is desirable and advantageous.

Second only to diet in importance is the use of insulin. The therapeutic value of insulin, the indications for its employment, and the principles of its application are thoroughly understood. It is universally agreed that no available preparation can at the present time be relied upon to fill the place of insulin in the treatment of diabetes. It is generally accepted that exercise is of value in the treatment of diabetes and particularly vigorous regular daily exercise in the open air and sunlight. Among the subsidiary therapeutic measures employed in the treatment of diabetes it seems advisable to group various factors which have a favorable effect upon the course of the disease. Most important of these is reduction of obesity by low calorie diets. Next in importance is the removal of infectious foci when present. The treatment of infectious processes in the body influences the diabetes favorably. When infections clear up, the diabetes improves, that is, there is a gradual increase in the tolerance for carbohydrate and calories usually noted by a reduction in the insulin requirement.

The improvement of the circulation in cases of cardiac decompensation coincident to diabetes is always favor-

able for improvement of the tolerance. The relief of an existing edema, the proper treatment of a hypertension or the reduction of renal failure with nitrogen retention are all factors which play a rôle in the improvement of a diabetic patient's tolerance for carbohydrate and calories. There are certain preparations on the market at the present time which are alleged to play a part in carbohydrate metabolism and thus have a beneficial effect on diabetic persons. These substances may be of value as an adjunct to the treatments outlined above and will consequently be discussed briefly.

Synthalin or dekyl-di-guanidine is claimed to have a beneficial effect on carbohydrate metabolism. It is known to be toxic in doses above 50 mgs. per day, after a few days, because of its cumulative effect. The action of synthalin on the blood sugar is mild as compared with insulin and in most cases it sooner or later causes toxic symptoms. The duration of the effect of synthalin is more than 12 hours, so that the toxic symptoms usually arise after the 2nd or 3rd day of administration. These symptoms consist of indigestion, vomiting, headache, fatigue and languor. These symptoms are relieved by vomiting and by the administration of glucose orally or intravenously. Because of the annoying symptoms from synthalin administration it is customary to supplement its use with decholin, an organic preparation derived from bile, which acts as a cholagogue or choleretic, and diminishes the toxicity of synthalin.

Decholin is accordingly always given in doses of 0.5 gm. for each 10 mgs. of synthalin. Synthalin can be used in even severe cases of diabetes after considerable experience has been attained. It is not advisable to use it in cases of diabetic coma or in place of insulin in acidosis or in the presence of acute infections. It is not advisable to give more than 30 to 40 mgs. of the drug per day in divided doses along with the corresponding doses of decholin. It is always necessary to accomplish the initial desugarization of the diabetic patient by diet or diet and insulin before beginning synthalin therapy. With the use of synthalin there is always a loss of weight and in cases where this is not desirable because of malnutrition or loss of strength the week is sometimes divided into two days of insulin, then two days of synthalin, one day of neither insulin nor synthalin, followed by two more days of synthalin.

The lowering of the blood pressure which occurs under synthalin therapy is interpreted as a toxic sign and, therefore, undesirable. The introduction of intercurrent insulin days prevents loss of weight and abnormal reduction of the blood pressure.

During the past year it was announced in Germany that a new preparation called glukhorment, prepared from fermentation of pancreatic tissue, was efficacious in the treatment of diabetes when administered by mouth. It was soon noted, however, that the physiological effect of this preparation was similar in all respects to that of synthalin. It was then found possible to isolate synthalin from this preparation and it was evident from the nature of the preparation that synthalin had been added

to the pancreatic fermentation product in its manufacture. For this reason synthalin is preferred as a practical form of treatment and the manufacture of glukhorment has now been discontinued.

In May, 1927, Allen (1) reported the use of blueberry leaf extract in diabetes. The extract was given the name myrtillin (*Myrtomel Squibb*) and it was alleged that this substance played an accessory rôle in carbohydrate metabolism and that it was therefore a useful adjunct in the treatment of diabetes. The basis for these claims consisted of encouraging but inconclusive experiments with depancreatized dogs and indefinite but presumably beneficial results which had been obtained in a few of a large series of diabetic patients. There has been to date no conclusive proof that myrtillin is of value or has any definite or dependable effect upon carbohydrate metabolism. It has been noted that myrtillin is ineffective when administered in the presence of an elevated blood sugar. It is of no value in the presence of infection. It seems to have its most favorable effect when all factors in the treatment tend toward improvement and therefore doubts are justified as to its having any influence on the improvement that is bound to follow. When every other circumstance favors improvement in a given case it seems that myrtillin may increase the spontaneous improvement. This is the most difficult action to determine, because no one can tell just how much of the improvement may have occurred in a particular case without the use of myrtillin. It is commonly noted that cases improve to a certain extent without myrtillin and sometimes this improvement is quite striking. In many cases there is no effect from the administration of myrtillin, that is, there is no obvious change in the patient's tolerance for carbohydrate or calories. Finally, in differentiating the various degrees of improvement the question is no longer one which can be proven conclusively and one must judge by personal experience over considerable period of observation. It is for this reason that the action of myrtillin in any given case must be described as uncertain and unreliable. In general there seems to be little noticeable difference in a given case whether myrtillin is used or not. In some cases the insulin requirement is reduced by a few units after myrtillin has been started and one becomes encouraged that the diabetes is becoming milder and the patient's tolerance is improving, but it is also true that in many cases where myrtillin is not employed similar improvements or spontaneous variations in insulin requirement occur for either obvious or obscure reasons. Occasionally it is noted that the insulin requirement falls a good deal after myrtillin has been started. This is particularly apt to be true in obese diabetics who have been losing weight rapidly or in cases of abrupt diabetes that are undergoing the process of primary desugarization following which there is always a marked spontaneous return of tolerance.

The first case reported by Allen Table 1) was an overemphasized initial desugarization improvement associated with undernu-

TABLE 1—USE OF MYRTILLIN IN A CASE NEWLY UNDER TREATMENT*
(From Allen 1)

	Diet			Urine		Blood				
Date, 1926	Protein	Carbohydrate	Calories	Sugar	Ac.	Sugar	Time	Insulin, Units	Myrtillin, Gm.	Weight Pounds
11/21	60	80	1,000	+++	+	242	7 a.m.	34	—	147
12/ 1	60	80	1,000	++	±	180	7 a.m.	44	—	147
12/ 5	60	80	1,000	++	0	122	7 a.m.	46	—	146
12/ 9	60	80	1,000	0	0	139	7 a.m.	48	—	144
12/14	60	80	1,000	0	+	105	7 a.m.	48	—	143
12/15	Started myrtillin									
12/18	60	80	1,000	0	0	107	7 a.m.	40	1	143
12/31	60	80	1,000	0	0	90	1 p.m.	34		
1927										
1/14	60	80	1,000	0	0	106	1 p.m.	28	1	144
1/29	60	80	1,000	0	0	111	¾ p.m.	20	1	141
2/11	60	80	1,000	0	0	107	1 p.m.	10	1	141
2/25	60	80	1,000	0	0	113	1¼ p.m.	6	1	139
3/18	60	80	1,200	0	0	93	1 p.m.	4	1	140
3/25	Stopped insulin				..	..	.....	—	1	
3/26	60	80	1,200	0	0	112	1 p.m.	—	1	138
4/ 8	60	80	1,400	0	0	98	1 p.m.	—	1	140
5/ 9	60	80	1,600	0	0	106	2 p.m.	—	1	139

TABLE 2—THE EFFECT OF MYRTILLIN IN REDUCING THE INSULIN REQUIREMENT
(From Allen 1)

	Diet			Urine		Blood				
Date, 1924	Protein	Carbohydrate	Calories	Sugar	Ac.	Sugar	Time	Insulin, Units	Myrtillin, Gm.	Weight Pounds
8/13	90	100	1,500	++	+	199	7 a.m.	30	—	125
8/23	90	100	2,000	—	—	200	7 a.m.	30	—	125
1925										
6/24	90	100	2,000	0	0	157	7 a.m.	34	—	131
7/ 3	90	100	2,000	0	0	125	7 a.m.	34	—	130
1926										
6/28	90	100	2,200	0	0	150	7 a.m.	34	—	142
7/ 5	90	100	2,200	0	0	160	7 a.m.	40	—	142
9/22	90	100	2,200	—	—	Started myrtillin		..	1	144
9/26	90	100	2,200	0	±	175	7 a.m.	40	1	144
10/ 1	90	100	2,200	0	±	90	7 a.m.	35	1	145
10/ 5	90	100	2,200	0	0	55	7 a.m.	25	1	144+
10/ 9	90	100	2,200	0	0	92	7 a.m.	10	1	—
10/11	90	100	2,200	0	0	156	7 a.m.	10	1	—
10/15	90	100	2,200	0	0	200	7 a.m.	10	1	145
10/17	...	...	....	..	..	...	.....	12	1	—
10/20	90	100	2,200	++	0	146	7 a.m.	16	1	144
10/25	90	100	2,200	++	0	118	7 a.m.	16	1	—
10/31	90	100	2,200	0	0	85	7 a.m.	14	1	144
11/ 5	90	100	2,200	0	0	112	7 a.m.	14	1	—
1927										
3/ 6	90	100	2,200	0	0	95	.....	14	1	151

trition and consequently is indefinite. The second case (Table 2) reported was that of a youth who was apparently out-growing his diabetes as is commonly seen in any diabetic clinic. By a period of years of accurate dietary control with insulin it is not significant that the insulin was reduced to half the quantity with the introduction of myrtillin. This is not at all definite evidence that myrtillin played any part in the improvement. In the third case (Table 3) proposed as evidence in favor of myrtillin the case was obviously a mild one since the initial blood sugar was only 199 mgs. per 100 c.c. and after a prolonged period of strict dieting it would be possible to control the patient without insulin or myrtillin. The process being speeded up by the introduction of fairly large doses of insulin does not produce any evidence in favor of myrtillin having any important bearing on the improvement which followed. In our entire diabetic experience we find that about sixty to seventy per cent of diabetic patients adhere religiously to strict dietary regulation for a long enough period to improve their tolerance. In the large series of cases of diabetes treated with myrtillin between sixty and seventy per cent of them improved while taking myrtillin to either a small or great extent, as shown by moderate gradual reduction in their insulin requirement. From a biometrical study of a large series of cases it would be impossible to say whether or not myrtillin was responsible for whatever improvement occurred. When a patient is at first given thirty units of insulin per day for some time and after the introduction of myrtillin gradually is enabled to reduce the insulin dose to half the quantity or none at all, it is not evidence that the myrtillin has acted, but evidence that thirty units of insulin could be given without difficulty in the beginning and could be omitted without difficulty later on; it does not mean that the patient needed the insulin, or, that the myrtillin could take its place in the treatment. From the experience outlined above it is noted that the effect of myrtillin is indefinite and the evidence advanced to show its action is inconclusive. It is therefore not possible to regard myrtillin as a reliable accessory form of treatment in diabetes mellitus.

Scarcely a year passes by that there are not numerous new remedies suggested for the treatment of diabetes. This is true whenever there is difficulty in determining the value of any therapeutic preparation in the treatment of any disease. Diseases which are less thoroughly understood than diabetes and in which there is no specific form of treatment are treated by innumerable methods because it has been found difficult to decide on the evidence at hand which method of treatment is the most beneficial. It is, therefore, no new situation to be unable to prove the value of this new preparation. It seems unfortunate that the clinical experience with the use of this preparation does not offer substantial support to the physiological observations and the animal experiments. This situation is not a new one but nevertheless unfortunate. The general trend of research in diabetic treatment is now directed toward a more conven-

TABLE 3—REDUCTION OF INSULIN DOSAGE THROUGH MYRTILLIN*
(From Allen 1)

	Diet			Urine		Blood				
Date, 1926	Protein	Carbohydrate	Calories	Sugar	Ac.	Sugar	Time	Insulin, Units	Myrtillin, Gm.	Weight Pounds
3/27	60	60	1,200	+++	++	199	7 a.m.	40	—	146
						230	1 p.m.		—	
4/ 5	60	60	1,200	+	++	118	7 a.m.	46	—	
4/30	80	90	2,000	0	+	156	7 a.m.	54	—	143
5/ 4	100	100	2,200	0	+	108	7 a.m.	54	—	144
6/25	100	100	2,200	0	0	125	7 a.m.	52	—	150
7/16	100	100	2,200	0	0	106	7 a.m.	50	—	149
7/17	100	100	2,200	0	0	88	7 a.m.	52	—	
	100	100	2,300					54		
8/..	100	100	....	..	..	...	.....	54	—	
9/..	...	...	....	..	..	...	.....	54	—	
10/12	...	...	2,300	0	0	186	2 p.m.	54	—	149
10/15	Started myrtillin			..	..	...	.....	54	1	
10/26	100	100	2,300	0	0	50	11 a.m.	40	1	152†
11/ 5	100	100	2,300	0	0	143	2 p.m.	36	1	153‡
11/19	100	100	2,300	0	0	88	3 p.m.	28	1	154
12/ 5	100	100	2,300	0	0	135	2 p.m.	28	1	154
12/19	100	100	2,300	0	0	104	2 p.m.	24	1	
12/28	100	100	2,300	0	0	118	3 p.m.	20	1	154
1927										
1/ 8	100	100	2,300	0	0	114	2 p.m.	15	1	154
1/22	100	100	2,300	0	0	91	1 p.m.	10	1	153
2/ 5	100	100	2,300	0	0	121	2 p.m.	6	1	154
2/18	100	100	2,300	0	0	104	1¾ p.m.	6	1	154
3/11	100	100	2,300	0	0	121	2 p.m.	6	1	154
3/25	100	100	2,300	0	0	129	2 p.m.	6	1	155
3/26	100	80	2,300	Stopped insulin			.....	—	1	
4/ 1	100	80	2,300	0	0	115	2 p.m.	—	1	154
4/ 5	100	80	2,300	0	0	146	1 p.m.	—	1	155
5/13	100	100	2,300	0	0	106	2 p.m.	—	1	156

*The patient was a man, aged 51. Myrtillin enabled him to reduce insulin gradually from 54 units to zero. The diet was not changed except for a brief period from April 1 to May 13, 1927. The body weight increased.

†No symptoms of hypoglycemia.

‡Cold.

ient substitute for insulin that will not have to be taken by hypodermic injection and it is not too early to predict that such will be found.

SUMMARY

The difficulty in proving the value of a diabetic remedy has been discussed and the therapeutic requirements of advances in diabetic treatment briefly outlined. The recently alleged accessory forms of treatment have been criticized. The impossibility of determining the therapeutic value of myrtillin has been emphasized.

(1) ALLEN, F. M.: Blueberry Leaf Extract, Physiologic and Clinical Properties in Relation to Carbohydrate Metabolism, Journal A. M. A., Nov 5, 1927, lxxxix.

An Experience with a Ketogenic Dietary in Migraine*

By Truman G. Schnabel, M.D., *Philadelphia, Pa.*

THE practice of dietary restriction for the control of hemicranial attacks is well known and doubtless dates back to a time when men or perhaps more often women first experienced such crises. Some migraine victims, long before consulting a physician, have learned to associate their sickness with the ingestion of certain foods and have accordingly omitted them from their dietary often with satisfactory results. The practice has been further extended by physicians who interdict for their patients as nearly as feasibility permits some one of the three great food groups. Even this course has undoubtedly been suggested by patients themselves when they have offered the observation that an increased intake of either carbohydrates, proteins, or fats has been followed by sick headaches and that restriction in one of these three types of food has seemingly been of some benefit. Here and there, either on their own initiative or under direction, individuals have practiced either prolonged or periodic fasting for bilious headaches not without some good effect as it would seem at least to those who have gone through this experience. Up to the present time various explanations have been offered for the apparent effectivity of either complete or partial dietary restriction in the control of migraine, but many of these explanations are largely theoretical and are open to justifiable adverse criticism.

With a knowledge that diet would seem to have a relationship to the migraine attacks of some individuals it must have occurred to many that the starvation treatment as advocated in epilepsy by Guelpa and Marie (1) abroad and by Geylin in this country must have some reasonable logic in its application. When Wilder (2) in 1921 suggested a high fat diet for the treatment of epilepsy on the hypothesis that the ketone bodies are responsible for the favorable effect of starvation in epilepsy, the conviction of the logic of a ketogenic diet must also have been born home to those who had been observing migraine in relationship to diet. It was only when Peterman (3) in 1925 reported results in the treatment of epilepsy by ketogenic diet that the applicability of this type of diet in migraine suggested itself to me.

There seemed, however, at the time

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very little justification for believing that a ketogenic diet would be of value in the latter disease other than the fact that migraine and epilepsy are disease equivalents, and that what is therapeutically effectual in one might be so in the other. No one had shown that the ketones of themselves bring about the seemingly favorable results of starvation or a high fat diet in epilepsy. Besides this acidosis had and is put down in text book discussions as one of the possible causes of migraine. I have, however, not been able to discover why this is so stated. The probabilities are that this is based on several observations. First—that in the well advanced acidosis of starvation a headache is likely to appear; as far as I know, however, not of the same type that is seen in migraine. Second—that a ketonuria is occasionally a positive finding at some time or other during a migrainal attack, and third—that in some instances (4) it has been observed that a cyclic vomiting child has become a migraine adult and just as earlier in life so in the later attacks, acetone has been found in the urine. The relationship of a ketosis to an explosive attack such as migraine and cyclic vomiting seems to be an uncertain one, perhaps not casual, but rather that it is the result of vomiting and starvation. With this in mind it was easy to theorize that a migraine attack might in some way be terminated by an acidosis, achieved as a result of the starvation and vomiting which the typical hemicranial patient experiences. Wilder's hypothesis made this theory somewhat more attractive. If it were assumed that an acidosis terminates a migrainal headache then the corollary assumption would attribute the onset of a migrainal attack to an alkalosis.

That this is so has some support in the literature. R. and S. Weissmann-Netter (5) in 1925 made studies in migrainous attacks occurring in relationship to the menstrual period. A state of decompensated alkalosis was found under such circumstances. This is in marked contrast to their findings of a compensated acidosis just prior to the inauguration of a normal menstrual period. Their studies included estimation of the CO_2 combining power and the pH of the blood. These authors, however, do not generalize from these findings in applying the conception to all attacks of migraine but feel that some migrainal attacks may have such a basis. In 1924 Forster (6) produced epileptic attacks in epileptics by having such patients practice hyperventilation and in 1926 Muck (7) reported the production of hemicranial attacks in twenty-seven migraine subjects by the same method. Such a circumstance of overbreathing of course brings about a disturbance of the acid base equilibrium due to the excessive loss of carbon dioxide. We have had an opportunity of studying the blood of only one patient in the course of a bilious headache. This patient was not of the ophthalmic variety and showed no change in the CO_2 combining figures. In two patients during a migraine attack we have found acetone in the urine.

Although the evidence is rather meager to show that migraine attacks are accompanied by a change in the

CHART I. DIET CALCULATION TABLE

Fat content of given diet is read directly in grams; protein decided upon and substracted from C + P column and the remainder is the carbohydrate content of the diet in grams.

CALORIES	RATIOS													
	1:1		1.5:1		2:1		2.5:1		3:1		3.5:1		4:1	
	F	C + P	F	C + P	F	C + P	F	C + P	F	C + P	F	C + P	F	C + P
1,000	77	77	86	57	91	45	94	38	97	32	99	28	100	25
	79	79	88	59	93	47	97	39	99	33	101	29	102	26
	81	81	90	60	96	48	99	40	102	34	104	30	105	26
	83	83	92	61	98	49	101	41	104	35	106	30	107	27
1,100	85	85	94	63	100	50	104	41	106	36	108	31	110	27
	87	87	96	64	102	51	106	42	109	36	111	32	112	28
	88	88	99	66	105	52	108	43	111	37	113	32	115	29
	90	90	101	67	107	53	111	44	114	38	116	33	118	29
1,200	92	92	103	69	109	55	113	45	116	39	118	34	120	30
	94	94	105	70	111	56	116	46	118	40	121	34	122	31
	96	96	107	71	114	57	118	47	121	40	123	35	125	31
	98	98	109	73	116	58	120	48	123	41	126	36	127	32
1,300	100	100	111	74	118	59	123	49	126	42	128	37	130	32
	102	102	114	76	120	60	125	50	129	43	130	37	132	33
	104	104	116	77	122	61	128	51	130	43	133	38	135	34
	106	106	119	78	124	62	130	52	132	44	136	39	138	34
1,400	108	108	120	80	128	64	132	53	135	45	138	40	140	35
	110	110	123	82	130	65	135	54	138	46	141	40	142	36
	112	112	125	83	132	66	137	55	141	47	143	41	144	36
	113	113	126	84	134	67	139	56	143	48	146	42	146	37
1,500	115	115	129	86	136	68	141	57	144	48	148	42	150	38
	117	117	131	87	138	69	144	58	147	49	150	43	152	38
	119	119	134	89	140	70	146	59	150	50	152	44	156	39
	121	121	135	90	144	72	150	60	153	51	155	44	158	39
1,600	123	123	137	91	146	73	151	60	156	52	157	45	160	40
	125	125	140	93	149	74	153	61	158	53	161	46	162	41
	127	127	143	94	150	75	155	62	159	53	163	47	165	41
	129	129	144	96	152	76	158	63	162	54	165	47	168	42
1,700	131	131	146	97	154	77	160	64	165	55	168	48	170	43
	133	133	149	99	156	78	163	65	168	56	170	49	172	43
	135	135	150	100	158	79	165	66	170	57	172	49	176	44
	137	137	152	101	162	81	168	67	171	57	175	50	178	44
1,800	138	138	155	103	164	82	170	68	174	58	177	51	180	45
	140	140	156	104	166	83	173	69	177	59	179	51	182	46
	142	142	158	105	168	84	175	70	179	60	182	52	185	46
	144	144	161	107	170	85	178	71	180	60	185	53	188	47
1,900	146	146	162	108	172	86	180	72	183	61	187	54	190	48
	148	148	165	110	176	88	183	73	186	62	189	54	192	48
	150	150	167	111	178	89	185	74	189	63	192	55	195	49
	152	152	168	112	180	90	188	75	192	64	195	56	197	49
2,000	154	154	171	114	182	91	190	76	195	65	197	56	200	50
	156	156	173	116	184	92	191	76	196	65	200	57	202	51
	158	158	176	117	186	93	193	77	198	66	202	58	205	51
	160	160	178	118	189	94	196	78	201	67	204	58	207	52
2,100	162	162	180	120	191	95	198	79	203	68	207	59	210	52
	163	163	182	121	193	97	200	80	206	69	210	60	212	53
	165	165	184	123	196	98	203	81	208	69	212	61	215	54
	167	167	186	124	198	99	205	82	210	70	214	61	217	54
2,200	169	169	189	126	200	100	207	83	213	71	217	62	220	55
	171	171	191	127	202	101	210	84	215	72	220	63	222	56
	173	173	193	128	204	102	212	85	218	73	222	63	225	56
	175	175	195	130	207	103	214	86	220	73	224	64	227	57
2,300	177	177	197	131	209	105	217	87	222	74	227	65	230	57
	179	179	199	133	212	106	219	88	225	75	229	66	232	58
	181	181	202	134	214	107	222	89	228	76	232	66	235	59
	182	182	204	136	216	108	224	90	230	77	234	67	237	59
2,400	185	185	206	137	218	109	226	91	232	77	236	68	240	60
	186	186	208	139	220	110	229	92	235	78	239	68	242	61
	188	188	210	140	222	111	231	93	237	79	242	69	245	61
	190	190	212	141	225	112	233	94	240	80	244	70	247	62
2,500	192	192	214	143	228	114	236	95	242	81	246	70	250	62

From Journal American Dietetic Association, Vol. II, No. 3, Dec. 1926. Article by Walter M. Bartlett, M.D.

acid base equilibrium, we prescribed a relatively high fat diet in a group of hemicranial patients, and it is the experience with these patients which we wish to tell of at this time. Just as in the diets suggested for epilepsy, so we have in migraine patients kept the carbohydrate intake as low as possible, ranging from 5 to 15 or 20 gms. per day. The protein intake has been fixed at about one gm. per one kilogram of body weight and the remainder of the caloric requirement has been supplied by fats. The caloric need for our patients was tentatively estimated on the basis of height, weight, sex and physical activity. Subsequent changes were made dependent upon a loss or gain in weight or upon the complaint of weakness. For the first three patients of this group we unwittingly suggested an immediate change to a diet whose gram ratio value we thought to be according to the (chart 1) plan of Luther and Bartlett, 3 of fat to 1 of carbohydrate and protein. These patients complained of indigestion with some nausea and vomiting and objected to go on with the diet. On recalculation we discovered the ratio of the diet to be actually 5.2 to 1. Our next two patients were placed on a diet ratio of 2.8 to 1. They, too, complained of indigestion but to a lesser degree. It is noteworthy to say in this connection that although these patients had digestive disturbances, still they had no headaches during the brief period of observation. One of these two patients with weekly attacks, however, remained on the diet long enough to miss to our knowledge two attacks of headache (chart 2). These first five patients deserted us presumably to seek relief elsewhere. At about this time we learned that the shift to a high fat diet should be made gradually and that it is not unusual to have nausea, vomiting, gas, etc., when the change to a ketogenic diet is made abruptly.

CHART 2

MIGRAINE—KETOGENIC DIET

A.	Patients on Immediate 5 to 1 Ketogenic Diet	3
	Patients on Immediate 3 to 1 Ketogenic Diet	2
	Indigestion	5
	Weekly attacks Relief	1
	Monthly attacks Relief (3)	0
	Biyearly attacks Relief (1)	0
	Acetonuria	5
	Diacetic Acid	5
B.	Patients Gradually to Ketogenic Diet	18
	No follow up obtained	6
	Not Relieved	3
	Acetonuria in Non Reliefs	3
	(2 to 1 Diet) 2	
	(3 to 1 Diet) 1	
	Relieved	9
	Total Patient's Ketogenic Diet	23

CHART 3

Breakfast
1 Egg
1 level teaspoon butter
6 crisp strips bacon (cut thin)
Coffee or tea } with 2 tablespoons heavy cream

Noon
¼ lb. Meat or Chicken
2 level tablespoons butter (use 1 tbsp. for frying; use 1 t bsp.—melt and pour on meat)
1 rounded tablespoon of one of the following:
Vegetables—
Spinach
Asparagus
Beet greens
Dandelions
Swiss Chard
String beans (very young)
Celery (cooked)
Mushrooms
Tomatoes
Brussels Sprouts
Cauliflower
Cabbage

1 level tablespoon butter
Lettuce with 1 level tablespoon mayonnaise
Coffee or tea } with 2 tablespoons heavy cream

Night
1 Egg
6 crisp strips bacon (cut thin)
1 rounded tablespoon of one of the vegetables listed above
1 level tablespoon butter
Lettuce with 1 level tablespoon mayonnaise
Coffee or tea } with 2 tablespoons heavy cream

In the remaining patients we began the regimen with a dietary having a gram ratio of about 1 to 2, increasing the fats and decreasing the carbohydrates every 3 to 4 days. A simple dietary is shown with its caloric value and gram ratio estimated (chart 4). Of the 18 patients on this plan, 3 patients were not relieved even though a state of ketosis had been established and they seem if anything to have more severe and more frequent attacks. Six other patients did not return frequently enough and were lost even to a follow up. Nine (chart 5) patients had, however, some relief as estimated by frequency of attacks and degree of severity, when attacks were renewed. Three of these patients have had no return of headaches but they happen to have had longer periods of freedom before the inauguration of the diet. Of those whose attacks have recurred, three confessed to a break in diet and an examination of the urine failed to show ketones.

CHART 4

	C/5	P/60	F/185
Eggs—2		12	12
Meat—4 oz.		32	20
Bacon 60		10	30
Vegetables, 5%—100	3	2	0
Oil 30 (2T)	0	0	30
Cream (40%) 90 6 T	3	3	36
Butter 65			55
4 T 1 t.	6	59	183

Total 1929 calories. Ratio 2.8 Fat. 1 Carbohydrate and Protein.

It would seem to be a difficult matter for adults to remain on a ketogenic diet judging from our group of patients. They were ambulatory and not under careful nursing or hospital supervision. It will be seen from our tabulation that the degree of ketosis is no measure of the relief which may be expected in patients

CHART 5—PATIENTS RELIEVED

	Age	Onset	Frequency Recent	Fat Ratio	Aceton-uria	Diacetic Urine	Freedom Time	Subsequent History
1.	*28	18	Semi-Weekly	2-1	++	0	3 months	3 attacks in 6 mo.
2.	32	21	Bi-Weekly	3-1	++	+	4 months	2 attacks in 4 mo.
3.	*21	11	Monthly	2-1	++	+	5 months	Monthly attacks
4.	42	16	"	2-1	++	0	3 months	Monthly attacks
5.	*36	16	"	1½-1	++	0	6 months	1 attack in 3 mo.
6.	27	22	"	2-1	+	0	4 months	2 attacks in 4 mo.
7.	27	14	6 weeks	3-1	++	+	7 months	Free at Present time
8.	28	26	Bi-Monthly	4-1	+++	++	4 months	Free at Present time
9.	39	24	3 months	2-1	++	0	5 months	Free at Present time

taking a high fat diet and that headaches return both with or without a positive ketonuria. All of which leads one to believe that the ketosis of itself just as in epilepsy is not the active factor in achieving relief. Perhaps the ketosis in some way influences some other metabolic function. It is needless to say that for migraine as well as for epilepsy no one has been able to demonstrate a consistent pathological lesion nor an universally acceptable production mechanism. Even the factor of heredity is not as clear as might be. Many etiological theories and therapeutic suggestions have been made for migraine. During the last 20 years at least 8 or 10 methods of treatment have been advanced to our knowledge. It must be evident that it is next to impossible to evaluate therapeutic results in such a disease as migraine—one that often yields at least temporarily when a new doctor is consulted and under his direction a new treatment is carried out. It is a disease that terminates at some time in life permanently or perhaps for a period only to return again. Such remissions to health may occur under many circumstances for no clear reasons. It is likely that migraine in different individuals has different causes and therefore therapeutic success may come after a varied type of treatment.

Those who are confident that migraine is an allergic manifestation will look upon any success which a ketogenic diet may seem to accomplish as being the result of a chance specific protein withdrawal. Those who are partial to carbohydrate restriction for the treatment of bilious headaches will regard a ketogenic diet as fitting in with their ideas of therapy. Those who regard the liver as the seat of dysfunction will contend that a high fat diet achieves its results by promoting biliary drainage or in some other way influences hepatic function. Those who look to the intestinal tract as the source of mischief in this disease will believe that the ketogenic diet is in keeping with their therapeutic practice and etiological theories. Those who consider duodenal dysfunction as a starting point in the genesis of migraine will also point out that duodenal motility alteration occurs after the ingestion of fat. This method of discussion might be continued with no end and has no purpose here. Obviously we cannot

conclude anything on the strength of our experience. Nine cases out of 23 did show some improvement, however, and we feel sufficiently encouraged to continue with the high fat method. In those with attacks at frequent intervals we will advance the fat content of their diet to the ketogenic point as rapidly as is agreeable to the patient. For those with attacks at longer intervals, we shall suggest a diet at least relatively high in fats and low in carbohydrates, and not too tiresome. For those with attacks coincident with the menstrual period we shall advise such a diet about one week before their expected occurrence. It is hoped that others may have an opportunity to try out a series of patients in a similar way and perhaps study migraine from the acid base standpoint before, during and after attacks.

(1) Guelpa, G., and Maria, A.: Bull. gen. de therap., 1910, clx:616.

(2) Wilder, R. M.: Mayo Clinic Bull. 1921, ii:307.

(3) Peterman, M. G.: J. A. M. A., 1925, lxxxiv:1979.

(4) Fawkes, M.: Migraine and Acetonuria, Brit. M. J., 1926, ii:1176.

(5) R. & S. Weissmann-Netter: Compt. rend. Soc. de biol., 1925, xcii:341-343.

(6) Forster: Hyperventilation epilepsie, Verbande Deutsche Nervenärzte in Innsbruck, 1924, Leipsig, Verlag. Vogel, 1925.

(7) Muck: Hyperventilation Migraine, Münch. Med. Wochenschrift, 1926, No. 24.

The Influence of Syphilis upon the Course of Other Diseases*

By James S. McLester, *Birmingham, Alabama*

THE tendency of Syphilis to produce vague clinical pictures, difficult of recognition, was to the preceding generation of physicians proverbial. Today, however, much of the obscurity which formerly shrouded the manifestations of this disease has been cleared up by the routine use of the Wassermann test, and because of the resulting ease of recognition in its commoner forms, syphilis is no longer looked upon as a potent cause of obscure illness. This change of attitude is not, I submit, entirely justified, as is evidenced, I believe, by clinical experience as well as the well known fact that syphilis, especially in inherited and in old or poorly treated acquired forms, occasionally exists in the presence of a negative or doubtful Wassermann reaction.

Experience inclines me to the belief that the earlier physicians were right in the great respect which they paid to syphilis; for, the more I endeavor to fathom disease complexes which are obscure in their origin or which are difficult to treat, the more do I become impressed with the protean character of late syphilitic manifestations and with the relative frequency with which this disease is an unsuspected cause of perplexing states of ill health. It is said that a famous surgeon of the post-Civil-War days, as he was nearing the close of a brilliant career, attributed his success largely to the fact that when in doubt he had always prescribed mercury and potassium iodide, to which was added the further reflection that he had not given these drugs often enough.

Volumes have been written upon the symptoms of outspoken syphilis, but comparatively little attention has been given to the relation of so-called latent or unsuspected syphilis to obscure states of ill health or to its influence upon the course of other diseases. Frequently, it is difficult to determine whether syphilis is the sole cause of a poorly defined illness or is merely a complicating factor in the course of some other infection. An example of this was recently seen in the case of a boy of ten years, whose symptoms and roentgenologic signs were typical of simple gastric ulcer, but who was not materially benefitted by the long-continued use of the usual ulcer treatment. His Wassermann reaction and that of his parents was consistently negative, but because of certain suspi-

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cious facts in his mother's history he was finally given mercury and potassium iodide. Immediately his abdominal distress disappeared and he blossomed out like a rose. In a short time he was well and has remained so. Whether this patient had syphilis alone or had a simple peptic ulcer which was prevented from healing by the anemia or other debilitating effect of an inherited syphilis, it is impossible to say. The latter explanation seems to me the more reasonable.

The baneful influence of a complicating syphilitic infection upon the course of pulmonary tuberculosis is well known, but the effect of this complication upon other respiratory infections has received little comment. Illustrative of such influence is the case of a young widow with one healthy child, who has been under my care from time to time during the past five years because of frequent colds which have kept her constantly below par and almost always with a little fever together with utter lack of endurance. Disease of the accessory nasal cavities and a cough which persistently suggested tuberculosis, but which was accompanied by physical and roentgenologic appearances in no wise suggestive of phthisis, recurred constantly. Her Wassermann reaction has always been negative, but finally when I learned that her husband had been treated for syphilis she was given similar treatment. Since this time her troubles have largely disappeared. The cough, anemia, and occasional fever as well as the evidences of sinusitis have subsided, and for the first time in many years she has the strength and sense of well-being of a normal woman. True, it might be assumed that this patient merely had pulmonary syphilis, which assumption cannot be disproved, but the clinical picture which included a catarrhal type of upper respiratory infection, frequently repeated, as well as mild bronchitis inclined me to the belief that the trouble was not due solely or even primarily to the spirochaete. I am inclined more to attribute her respiratory infections to the bacteria which commonly cause such troubles and to conclude that a hitherto hidden syphilis prevented complete recovery.

Pulmonary syphilis in the form of diffuse gummata or as a general bronchitis has been occasionally observed and requires no comment, but the influence of syphilis upon the course of another specific infection which involves the lung, lobar pneumonia, is less well known. Prior to 1918 when typical lobar pneumonia, rather than the present bronchial type, prevailed in Alabama during the winter months we occasionally saw a patient with lobar pneumonia whose illness pursued the usual course with typical crisis but who, without empyema or other recognizable complication except positive Wassermann Reaction, experienced delayed resolution and a continued post-critical fever. In typical cases after discovery of the existence of syphilis and the administration of appropriate remedies the lung has rapidly cleared up and the fever has promptly subsided. Similar observations have recently been reported by others.

What I have just said of the control sometimes exerted by an under-

lying syphilis over the behavior of other diseases is by way of introduction to the report of a syndrome in which syphilis seems to influence in a characteristic manner the temperature curve of still another specific disease. The patient with typhoid fever who also has untreated syphilis does not in certain instances get well at the expected time. His fever may show a tendency to continue indefinitely. We made this observation first at the Hillman Hospital in Birmingham sixteen years ago, and subsequently have had ample opportunity to confirm its accuracy. It should be said that we have not confused this syndrome with the continued fever sometimes seen in uncomplicated syphilis, for these patients all gave satisfactory bacteriologic or serologic as well as clinical evidence of typhoid fever.

Typical of the group of whom I speak was our first patient, a young white man who entered the hospital with outspoken typhoid fever, and from whose blood the typhoid bacillus was cultivated. He exhibited none of the stigmata of syphilis and, as this was before the Wassermann test had become a routine clinical procedure, syphilis was unsuspected. His illness pursued at first an eventful course and about the end of the fourth week the previously high fever fell by lysis to about 100° F., but thereafter with small diurnal fluctuations it remained very near this level. Day after day the fever continued with no tendency toward subsidence and with apparently little effect upon the patient's sense of well being. The man seemed to feel well but gained little or no weight, and physical examination failed to reveal any complication which could explain the continuance of the fever. At the end of another two weeks the Wassermann reaction was found to be positive, and on the administration of mercury and potassium iodide the fever promptly subsided. The patient then made an uneventful recovery. Since this time four similar cases have appeared, which in all essential features have been so convincingly like this first case as to leave little doubt that a combination of typhoid fever and syphilis may result in a fairly typical temperature cure.

Apparently the syphilis does not at first materially influence the course of the acute illness. The character of the fever, the abdominal symptoms, and the other features are as a rule those ordinarily encountered in typhoid fever. It is only at what may be regarded as the end of the typhoid course that the complication makes itself evident. The fever fails completely to subside. It continues at this relatively low level, promptly to disappear under the influence of syphilitic treatment. We have been unable to observe any other features of this syndrome which are sufficiently characteristic as to warrant comment.

It is recognized, of course, that there are many causes for persistence of the febrile reaction of typhoid fever, but in the group of patients under consideration the association of a positive Wassermann Reaction with the prompt disappearance of the fever on the administration of mercury and iodides, warrants I feel the assumption that a previously unobtrusive

syphilitic infection is in some measure at least responsible for the continued fever.

Certain questions suggest themselves. If the spirochaete can be killed in the tissue by high temperature, as is attempted in the malarial treatment of paresis, why doesn't the typhoid fever cure rather than stir up the syphilis? Evidently it does not. What relation, then, have the two diseases to each other? Is this low grade fever which continues day after day to be regarded as evidence primarily of a persistently active typhoid infection or as the expression of renewed activity in a previously latent syphilis? Laboratory studies of the patient will not answer this question, for both bacteriologic and serologic evidences of typhoid fever are apt to persist for some time after recovery. Its answer is largely a matter of clinical interpretation. Although the existence of true latency of syphilis in a pathological sense may well be questioned, it seems fair in the syndrome just described to conclude that an asymptomatic syphilis is reawakened by the invasion of typhoid bacilli, and that as the acute bacillary infection subsides the renewed spirochetal activity then makes itself evident in the manner described.

The Practice of Cardiology*

A Consideration of the Continuous Care of Heart Patients by the Prolonged Use of Drugs, Physiotherapy and Psychotherapy

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IT IS a privilege indeed to address the American College of Physicians, in the organization of which I took part at the beginning, and to be allowed to speak on a topic which has occupied most of my conscious moments during more than half of my professional life.

The idea of the American College of Physicans was discussed by a group of men in New York City shortly after the meeting of the International Medical Congress which was held in London in August, 1913. We had come back to America with vivid recollections of delightful encounters with great men and impressive meetings and ceremonies, but none stand out more vividly than the sermon preached by Dean Inge to the assembled physicians in St. Paul's Cathedral. In the opening sentence which still lingers in one's mind he said, "I greet you as defeated captains. You are always doomed to final failure in your encounters with disease." He then went on to draw a beautiful picture of the character and work of the true physician, struggling with disease, but always doomed to lose his last encounter when death finally claimed each human being, one after another.

This sermon must have particularly impressed those whose life work was the care of cardiac disease.

However, the most casual observer must acknowledge that during the past twenty years a great change has taken place in the treatment of heart disease. This change represents a fundamental alteration in the point of view of the profession towards the science of medicine. But to understand this change we must go back several hundred years and observe the pendulum of medical thought that has first swung one way and then the other.

Early medicine was highly speculative and founded very much upon tradition and superstitution as was natural to the more simple, mental processes of the time. Later, men attained a pride in their own intellect and very elaborate, dogmatic theories were erected to explain medical observations and to guide the treatment

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of the sick. Then the experimental method gradually arose advocating the direct observation of disease. Unfortunately there also developed a too profound reverence for the study of changes in structure that result from disease and the great pathologists of a hundred years ago were the great men of the profession.

Virchow and his contemporaries and predecessors believed that when they had pictured and recorded pathologic anatomy that they had done a very complete task pertaining to disease. But Virchow founded the cellular hypothesis and this led logically to the study of function.

When I was a medical student the school of pathologic anatomy had reached its highest development and the great clinicians of the world were the physicians who were greatest in predicting pathologic anatomy as it was later revealed to the eye.

It has seemed to me that I have seen grow up a newer respect for the modification of function as the important element in disease. In the early days the practice of cardiology was most discouraging because it constituted a description of changes in structure and it is rather amusing to recall at this time the amazement of the older professors at the length of time that people lived after their pathologic anatomy had been mapped out and found profoundly altered from the standard for well people. It was a greater surprise when some man in a remote part of Europe or some other place was discovered who went ahead and treated by physiological methods the person who carried this pathologic anatomy and gave him a new lease of life and a new hope of continued efficiency.

There was literally no pleasure in the practice of cardiology in the shadow of the pathologic anatomist and a better condition only developed as the modern cardiology grew up with its relatively less emphasis on structure and its relatively greater emphasis on function.

The modern cardiologist records structure but carefully differentiates what is the result of compensatory processes and what is the result of fundamental disease. He no longer prates on enlargement of the heart as a great evil. He studies in detail the functions of the heart and seeks to discover those modifications of function which are beneficient and those which are harmful and by an adjustment of the active forces at play in the heart beat brings about a prolongation of life and happiness that was not possible in the face of concepts founded upon structure alone. So the modern practice of cardiology is founded upon a study of cardiac function.

The object of this lecture is to outline in a concise form the practice of cardiology by modern methods. We all know that in recent years there has been a great advance in our knowledge of cardiac disorders and that this has been of such practical importance in diagnosis, prognosis and treatment that it should be at the service of every person suffering from a disorder of the heart. Many problems that baffled physicians for centuries have been solved and more and more help is found for the heart sufferer as precise methods are followed.

It would be logical to preface this lecture by a review of the knowledge and methods in use before the introduction of graphic methods but time does not permit and the exclusion must not be construed or laid to a lack of appreciation of their vital importance.

It is just twenty years since McKenzie completed his great book "Diseases of the Heart" which crystallized the result of his own work and of those who went before. In our enthusiasm for graphic methods we sometimes forget the great service done to cardiology by Gaskell when he formulated the functions of the fibres of the heart muscle. This classification is not by any means perfect or complete, but it is so much better than anything else that it has stood for these many years as a wonderful guide to the understanding of disturbed cardiac function. McKenzie gave due credit to Gaskell for naming the five fundamental functions of the fibres of the heart muscle as stimulus production, excitabilty, conductivity, contractility and tonicity. McKenzie refined these functions as follows:

"By stimulus production is meant the power which the muscle fibres possess of originating a stimulus which can excite the heart to contract; by excitability is meant the power to receive a stimulus; by contractility is meant the power of conveying a stimulus from fibre to fibre; and by tonicity is meant that function of the heart muscle which keeps the heart during diastole in a state of slight tonic contraction.

The functions of stimulus production and excitability are most highly developed at the sinus part of the auricle. The rate of the heart depends upon these functions, an increase of their activity resulting in an increase of the frequency of the cardiac action. The activity of the function of stimulus production varies a good deal, as, for instance, the slight acceleration of the heart during inspiration, and the corresponding slowing which occurs during expiration in the young. When excitability is increased, the heart has also a greater tendency to respond to abnormal or irregular stimuli; hence extrasystoles are more likely to occur. While diminished excitability may lessen the heart rate, it should be remembered that slowing of the ventricular rate may be due to other causes, such as depressed conductivity. When stimulus production and excitability are equal the rhythm of the heart is regular. The pulsus alternans is probably an indication of depressed contractility of the heart. The rate at which the contraction travels from fibre to fibre varies in different parts of the heart. Thus, the impulse spreads in the auricles and ventricles more quickly than it does from auricle to ventricle. In this connection it may be noted that conductivity is observed by estimating the time between the systole of the auricles and ventricles. A lowered state of tonicity results in dilation of the heart and of the auriculo-ventricular orifices.

Immediately after the muscle fibres of the heart have contracted they cannot again be stimulated; in other words, excitability has for the moment disappeared. This is called the

refractory stage. Restoration of excitability, however, at once recommences, and steadily increases during diastole. When stimulated the cardiac muscle either does not contract at all, or it contracts to the fullest possible extent at the time whether the stimulus be weak or strong. There is, therefore, no relation between the strength of the stimulus and the strength of the contraction; it is a case of "all or none."

The longer the time that has elapsed since the previous contraction, the weaker is the stimulus required to bring about further contraction. Further, the greater the degree of excitability of the muscle fibres, the weaker is the stimulus required, and the earlier in the refractory period will the heart contract. The contractility in the muscle fibres is measured by the degree of contraction. The amount of the contraction does not depend upon the strength of the stimulus employed, but varies according to the time at which the stimuli are applied. When a contraction occurs early in diastole, the contraction in the succeeding cardiac cycle is weaker than that preceding it. Within certain limits the degree of contractility depends upon the length of the preceding diastole; the greater the period of rest, the more perfect and full is the recovery. It can, therefore, be readily understood that the greater the heart rate the greater is the possibility of cardiac failure. The circulation is carried on most efficiently when the cardiac rate is exactly that which allows the myocardium to recover its full contractility; a rate over or under this being a disadvantage. Similar laws apply to each of the other special functions of the heart muscle. In the case of conductivity for example, when conduction occurs, this function has been exercised to the fullest extent possible at the time of stimulation. The refractory period follows immediately after the conduction of a stimulus, and during this brief period the muscle fibres cannot again conduct a stimulus, conductivity being completely exhausted. Restoration, however, quickly commences, and ultimately the function is restored. The extent of the relaxation between the contraction depends upon the degree of tone present, and upon the rate of the heart beat. With a slower rate there is, of course, more time for full relaxation."

The management of blood pressure has a large place in the practice of cardiology. There is much cardiophilosophy wrapped up in the subject of blood pressure. Any man who looks upon blood pressure observations as a matter of pure arithmetic by only attempting to record exactly the systolic and diastolic figures, loses the soul of the whole operation. The observation of blood pressure in active practice is one of the nicest procedures in the domain of medicine and is best carried out by use of one of the aneroid instruments. After the cuff is applied and the stethescope is placed over the bend of the elbow the observer studies the effect of various pressures upon the pulsating vessel. This observation alone when carried out by one who has done it many thousands of times on many different subjects suffering from different circulatory disorders gives a very

intimate acquaintance with the functional state of the heart and blood vessels. The findings may be recorded as systolic and diastolic pressure but there is a lot more to it. Nothing is more impressive than to apply the cuff to the arm of an individual and hear through the stethoscope the systolic bruit before any pressure is applied. This means a high degree of aortic incompetency and is the first hint of a probable diagnosis of specific disease.

Again, when a very sick person comes under observation and shows no sound in the stethoscope except perhaps between 120 and 140, a very small pulse pressure, one knows immediately that he has to deal with a failing myocardium. The skillful use of the sphygmomanometer is no small part of cardiological observation.

Fluoroscopy is a fast developing art. The old adage "seeing is believing" can be applied to the use of the fluoroscope in cardiology. After observing a great many persons of all sizes and ages suffering from many different cardiac troubles personal skill in observing and interpreting is acquired and goes very far to remove obscurity in cardiac disease.

Combined fluoroscopic, radiographic and orthodiagraphic examinations of diseased conditions give evidence of the nature of affection through the occurrence of changes in the character of the pulsation, the position of the heart and the size and form of its outline.

In fluoroscopic examinations the lower right border (right auricle) expands extensively during systole in some cases of tricuspid regurgitation. The upper left border (aorta) gives strong systolic expansions in aortic insufficiency. Whenever the pulsations of the left auricle become visible, as in mitral lesions, they are differentiated by being presystolic in time. Strong pulsations of the pulmonary artery are evident on the left side in cases of persistent ductus arteriosus, or more frequently, when a severe stasis due to mitral lesions is present. Abnormal rhythms, as heart block and pulsus alternans, have been studied and diagnosed by fluoroscopic methods, but this procedure possesses no obvious advantages over auscultation. The asynchronous contraction of the right and left ventricle represented by the notched Q R S of the electrocardiogram was demonstrated by the author at the New York Academy of Medicine, though it must be confessed that all did not agree to the interpretation of the two shadows.

A change may occur in the position of the heart from congenital causes, as situs inversus viscerum, from pleural and pericardial adhesions, or from changes in the intrathoracic volume. These last are very common. Even normal variations are caused by the varying position of the diaphragm. In long-chested individuals the cardiac shadow is long and narrow, the axis being more vertical, while in short-chested individuals or in those in whom the diaphragm is pushed up by abdominal distention, it is broad and assumes a horizontal axis. Its position changes as the diaphragm ascends and descends in respiration. It should be remembered that normally the heart is subject to considerable shifting and undue weight should

not be attached to slight variations in position. If for any pathological cause, such as enlargement of the liver, the right dome of the diaphragm is pushed upward, the heart shadow will be displaced to the left. Pulmonary affections, such as atelectasis, tuberculosis and pneumothorax cause a traction on the heart toward the side of the lesion. On the contrary, pleural effusions, tumors, etc., push the heart toward the opposite side. Any rotation of the heart, of course, modifies the shadow and it is often my custom to have the subject turn completely around behind the fluoroscopic screen.

The heart shadow often decreases whenever the heart accelerates, such as in exercise, tachycardia, after atropine, although the results obtained concerning this point have been discordant. During asthmatic attacks the heart is also reduced in size. A condition simulating this, as far as the effect upon the circulation is concerned, can be produced by the well known experiment of Valsalva which consists in taking a deep inspiration and then, with closed glottis, making a forced expiration. This diminishes the blood content of the heart which accounts for its decreased size.

The heart outline increases after continued hard labor or exercise, pathologically also in nephritis and arteriosclerosis. In these cases an actual hypertrophy resulting from the greater strain to which the heart has continually been subjected is usually the cause. The increase in size (often temporary) associated with acute infections, such as diphtheria, scarlet fever and polyarthritis is no doubt accounted for by a dilatation of the heart.

The details of the enlargement are of the greatest importance in heart lesions, in which case it is due either to dilatation or to hypertrophy and hence accompanies only lesions of considerable duration and severity. The nature of the dilatation or hypertrophy determines the direction of the enlargement and the contour of the shadow. A left ventricular enlargement takes place to the left. Dilatation or hypertrophy of the right ventricle displaces the shadow partly to the right but also, to a marked degree, upward and to the left. In typical cases of aortic insufficiency the heart shadow is enormously increased toward the left and the contour resembles a horizontal oval or is sometimes called "shoe-shaped." The aortic shadow is increased in width and the apex is never merged with the shadow of the diaphragm. Aortic stenosis causes very similar though less pronounced changes in the radiographic outline. In mitral stenosis the heart shadow which is relatively small, resembles more clearly a vertical oval. The enlarged left auricle becomes prominent on the left margin and above it the pulmonary artery bulges, thus giving the entire left border a step-like appearance. In mitral insufficiency the enlargement tends to be uniform in all directions giving the shadow the appearance of a poorly rounded circle. The right auricular border is distinctly enlarged to the right and the pulmonary artery dilated. The left ventricular shadow is increased toward the left.

For the benefit of those of my audience who are not cardiologists I pause a few moments to give a simple, popular description of the findings of the electrocardiograph and the polygraph, hoping to break the ice and induce others to take up the study.

The electrocardiograph has given us methods of recording cardiac function which were undreamed of in the olden days and while a single observation is of vast importance our real satisfaction comes in observing by the electrocardiograph the changes in cardiac function over long periods of time.

When a physician is reading a book and meets a line of a foreign language, such as Sanskrit or Hebrew, he can skip it with a clear conscience because he is not expected in his professional capacity to know what it means. But the time is soon coming when any man who skips an electrocardiogram that is used in the description of the heart condition will display a lack of professional knowledge that will be inexcusable. It takes about three months of hard study to grasp the essential points of electrocardiology but the great trouble that comes at the very beginning is that the electrocardiogram does not correspond with the ordinary description of the heart beat as consisting of systole and diastole, nor does it correspond with the sound of the heart as described as the first and second sound.

The description of the heart beat as consisting of systole and diastole is entirely inadequate as describing what really takes place, and as regards the sounds of the heart, it is found that auricular contraction does not make any sound, nor does the ventricular contraction make any sound except at its beginning. So it is much better in attempting to read the electrocardiogram to forget all that has been learned about the heart action and about the heart sounds and the so-called cycles of the heart and to start all over again.

In the electrocardiogram we have a record of everything in the nature of muscular activity that takes place in the heart, and the most casual inspectino of the electrocardiogram in a healthy person reveals three principal events.

Figuratively speaking, from left to right, there is a little mound, a church steeple and a small mountain. In every electrocardiogram this church steeple is always present, though the style of its architecture may vary a good deal. The mountain is also present in all electrocardiograms, but the little hill is absent or displaced a good many times. The little hill represents the contraction of the auricle, the church steeple represents the sharp contraction of the ventricle on its contents, and the mountain represents the squeezing of the contents of the heart into the circulation. So in reading the electrocardiogram the first thing to look for is the church steeple; then walk back a little and look for the hill; then return past the church steeple and inspect the mountain.

The little hill is called the P wave. The church steeple, or spike, is called the R wave, and the mountain—representing the work of the ventricle—is called the T wave. The letters P, Q, R, S, T, U were arbitrarily used to name the different waves that

are found in the electrocardiogram. The Q wave is the downward wave following the upward P wave and the S wave is the downward wave following the upward R wave. P, R and T are the principal letters; the others receive scant notice in ordinary clinical work.

I wish somebody would strike a simple method for remembering these things. Perhaps the idea of passing a little hill, then coming to the church at the foot of the mountain will do to remember the waves, but how to fix the letter P as belonging to the hill and the letter R as belonging to the church, and the letter T as belonging to the mountain, I do not know. Perhaps if you try to contrive some way of remembering you will think so much about it that it won't be necessary to have any way to remember it.

After we have learned to recognize the wave of the auricle, and the wave of the ventricular contraction, and the wave of the ventricular work, then we come to the study of the electrocardiogram of a healthy heart. Just as in handwriting, so hearts, in writing their autographs make a great variety of signatures, but the outstanding characteristics in healthy people show the auricle always beating in a regular specified time before the ventricle, and the ventricle taking a specified time to complete its work, and these things recurring regularly without interruption.

There are seven varieties of irregular hearts and a friend of mine the other day did strike a trick for remembering these, which, though rather clumsy, may serve our purpose. He said, remember the word "ships" and then three A's. Leave out the I in "ships" and we have SHPSAAA.

S stands for sinus arrhythmia; H for heart block; P for premature contractions; S for simple paroxysmal tachycardia; A for auricular flutter; A for auricular fibrillation; A for alternation in the pulse. I have found the "ships" AAA, quite a help when all of a sudden I have to recall this list of irregularities.

In sinus arrhythmia, we find the beats of the heart all right, but the beats do not come at regular intervals, the space between them growing gradually shorter as the pulse is observed over a short period of time.

In heart block we find either a lengthened distance between our little auricular hill and our ventricular church steeple, or we find the distance between the hill and the steeple different in every beat. The former means that the impulse of the heart is delayed between the auricle and the ventricle. The other means that there is no impulse conveyed from the auricle to the ventricle and each beats at its own individual rate.

In premature contractions we have a very peculiar state of affairs that makes a most extraordinary picture. We have a very large church steeple, often turned upside down, and a very large mountain which is also often upside down, but when we come to look for out little mound, it is entirely absent. This means that the ventricle of the heart has undertaken to beat by itself, not waiting to receive its cue from the auricle. The reason that the beat is upside down is that the ventricle started to con-

tract at its apex instead of at its base, thus reversing the electric current.

In simple paroxysmal tachycardia we find the beats of the heart very numerous and crowded together, so that very often our auricular mound and our ventricular mountain come together and the hill is lost in the mountain. That means that the auricle started to beat before the ventricle was through beating. At other times the beat is natural enough in its hill, its church steeple and its mountain, but there is no interval between the beats.

Auricular flutter is just what its name implies, that is, a very rapid beating of the auricle like a struggling bird held in your hand. It produces a large number of little mounds that are distributed at regular intervals throughout the electrocardiogram, but at the same time the ventricle is beating and producing its church steeple and its mountain. Sometimes there is a church steeple for every two mounds and sometimes the church steeple and the mounds come irregularly. Often there are three hundred mounds and one hundred and fifty church steeples produced every minute.

In auricular fibrillation our auricular mounds are entirely absent, and are replaced by something that looks like a ploughed field and the church steeple and mountains are present in great numbers but are absolutely irregular in their arrangement. This means that the auricle is trembling and not contracting, being paralyzed.

I have taken the time to give this simple ABC introduction in electrocardiology because it seems to me that the great stumbling block in the whole matter is that people do not make a beginning in this study. It is a most fascinating field of work and I am sure will well repay in pleasure and usefulness the effort expended to become familiar with it.

Vital capacity constitutes an additional resource for observing a person subject to heart disease. We have been using it with the last few hundred people but have not yet formulated an independent judgment as to its application. It is a very definite fact, however, that reduced vital capacity is strong evidence of impaired cardiac function and that it varies with the condition of the heart.

In spite of all modern tendencies to the contrary drug treatment still constitutes a most essential element in the practice of cardiology. The development of individual practice is from the complex to the simple. Every physician starts medical life with his mind stored with information as to a vast number of remedies. Twenty five years later he has selected according to his own training and experience a much smaller number of drugs which he applies with infinitely more skill than he did at the beginning.

The tools of the physician are drugs. Paints and brushes are the tools of the artist. Everyone can supply himself with brushes and paint and even if he has selected the proper brush and the proper paint he has not gotten very far towards painting a picture. In the same way the cardiologist when he has selected the proper drug and has decided upon the combinations in which it is to be admin-

istered has not gotten very far towards the curing of the sick person. Everything depends upon the constant adaptation of the remedy, as to time and dose, to the immediate needs of the individual.

Drug treatment might well occupy the whole hour and many more besides but I will limit my consideration of the subject simply to an enumeration of a few drugs that I find especially useful in actual practice. If I neglect to give this subject the time that it merits it is because of its ancient standing which makes emphasis of it unnecessary.

In defense of the limited number and precise form of these drugs I would say that I have always regarded a man's practice as an experimental field in which the office is the laboratory. The more precise and uniform the methods used the more clear are the teachings of experience. No man prescribing many different forms of digitalis for many different people, under different circumstances, can draw nearly so valuable a set of conclusions as when he uses exactly the same preparation as to strength and unit of dosage under all conditions. For that reason I adopted, under the influence of the teaching of the late Professor J. M. Groedel of Bad Nauheim, a half grain tablet of digitalis leaves as the unit of medication and have stuck to it with the result that I have been able to predict, at least in my own practice, about what the reaction will be under various conditions and circumstances.

The choice of this unit was founded upon the fact that three of these tablets in a day, equalling a grain and a half of digitalis, is the average maintenance dose. I have expounded this to each one of the army of detail men who in course of time have come to me from drug firms and each one has always seemed very much impressed and said he would go back to his firm and have them make up this half grain digitalis tablet. Only within the last few days has my propaganda borne fruit, for I received a circular from Burroughs-Wellcome that they had agreed with my reasoning with regard to half grain units of digitalis and that they would make and dispense the half grain tablet of the leaves. The grain and a half unit of the average proprietary digitalis preparation is entirely too large. It is like a mechanic having nothing in his kit of tools but a great big monkey wrench that would not lend itself to fine adjustment for any really delicate mechanical operation. For these reasons the half grain digitalis tablet is my choice of a unit of medication in digitalis. The too large habitual unit has led to discouragement to many physicians who have tried to learn what I consider the acme of cardiological achievement, and that is the continuous treatment method for persons subject to attacks of decompensation.

I will mention only five drugs. The next one is quinidine. Here, again, the druggist does not give us a satisfactory tablet, if indeed he gives us any tablet at all. I use a two grain tablet which is of much value as a heart sedative in the minor functional disorders. I refer you to an article of mine published in the New York Medical Journal & Record of July—

page 25, "The Value of Quinidine Sulphate in Cardiology." I think quinidine is one of the best things we have had added lately to our resources in treating heart disease.

The third remedy is theobromine and sodium salicylate (Merck). I use the five grain compressed tablet, with definite instructions that it should be taken after meals as fully as possible dissolved in half a glass of water. You cannot give satisfactory doses of this remedy unless it is well dissolved in water because it has an irritative action on the stomach when it reaches the lining in concentrated form. I have found this a very important point in the use of this most valuable drug. In five grain doses three times a day, taken over long periods of time, it is of much use in eliminating the recurrence of anginoid attacks. I have already referred often to the late Professor J. M. Groedel of Bad Nauheim. This is because I studied so much with him and got so much valuable help from him. It was he who taught me the use of this drug in this way. Never forget the value of the salicylate in diminishing cardiac pain.

The fourth remedy is nitroglycerin. Again, we are up against the difficulty of unsatisfactory preparations. I am told that Burroughs-Wellcome no longer make tablets as they find it utterly impossible to keep them satisfactorily. My own solution of the problem has been to have granules representing 1/225 of a grain made with a solid coating. These, I know, retain their strength for long periods of time because a good many people with recurrent anginoid pain test them practically every day. In these small doses nitroglycerin is a very useful remedy in almost any cardiac emergency. It never does any harm and relieves many symptoms even where it is hardly possible to explain the reason. So it is my custom to have nearly all people with important cardiac impairments carry a small phial of these granules for use in any emergency.

The fifth remedy, without which I would not care to practice cardiology, is castor oil. I try to train all cardiopathic individuals to take a full dose of castor oil at least once a month. It is an insurance against the intestines becoming a depository of residual food matters and many people enjoy the sense of well-being which they feel after the monthly dose of castor oil. In the face of very serious cardiac impairments I have found serial doses, say an ounce every other day for three doses, a very useful approach, particularly where saline elimination has been previously abused. The constipation following castor oil is of advantage in the restoration of circulatory tone in some "down and out" individuals.

If I had to deal today with a bad example of cardio-vascular renal disease with high blood pressure, badly disordered metabolism and failing circulation I would be apt to send them home with the following prescription:

℞ Tr. Iodine m XL
Menthol gr VIII
Oil Ricini ʒ IV
Two tablespoonsful at night in orange juice, March 7th, March 9th, March 11th, March 18th, April 1st, April 22nd, May 22nd and then once every month.

The relation between cardiology and gastroenterology is so intimate that if you scratch the skin of the cardiologist you will find underneath a student of gastroenterology. Cardiac function and gastroenterological function are so intimately associated that the medical mind cannot consider one without the other and the lay man usually confuses the two. I honestly think more people suffering from functional cardiac pain go to the gastroenterologist than to the cardiologist during the early stages of their complaint. I know of a newly established gastroenterological clinic whose first six applicants for treatment were suffering from cardiac disease.

In mentioning psychotherapy I do not wish to imply that we are in any sense suggesting the formal adoption of it in cardiology as it has been adopted in neurology but I do think it must always be considered as an important element in dealing with the heart sufferer. There are some principles of psychotherapy that we cannot get away from. In the first place, the minute we indulge the vice of prophecy of evil in allowing ourselves to fix even the idea of a failure of our efforts to cure we defeat the possibility of a successful psychotherapy. So prognosis must be in a large measure eliminated by the successful practitioner of cardiology. I say to people, "I hope and believe that my efforts will be successful in helping you. I do not know what the outcome will be. I have seen many people much sicker than you are do very much better than anybody had a right to expect." Personally, my method has been to acknowledge frankly the danger of sudden death in serious cardiac disease. I say, "it is true, you may die suddenly, but of the great multitude of people with heart disease the number who die suddenly is very, very small. The sudden death of a prominent person on a golf course is advertised in every newspaper in the United States, and yet this happens only once in a few months. I cannot assure you that you will not die suddenly. I want you to accept it as a possible fact and then forget it."

This method of meeting the situation may be a matter of personal success on my part but it has always worked out very well and I never hear again an expression of the fear of sudden death. If I attempted by prevarication and dissimilation to conceal danger that is a fact I believe that the situation would naturally be aggravated. Here I must leave the subject to psychotherapy.

When I say that physiotherapy was the thing that led me to devote myself to cardiology it is easy to believe that it has always been a matter of he greatest interest. At the very beginning of this line of work I went to Bad Nauheim and studied the methods there and I think I absorbed certain principles that have been an influence every since. Physiotherapy involves the training of people as to exercise. My favorite prescription for heart sufferers is to walk out of doors before twelve o'clock in the day, up to the point of fairly definite physical fatigue. The principle that exercise should be taken before the work

of the day and not after is an important one. The business man who attempts to take exercise after his day's work does not get much benefit from it and usually gives it up. The man whom you can persuade to take exercise in the early morning gets the real benefit. Baths, exercise, light and electricity must all be considered but cannot be more than mentioned here.

I first became interested in cardiology through the work of men who were decidedly outside of the pale of the more conventional group of physicians; men who at that time were under the cloud that then hung low over the practice of physiotherapy. Most conspicuous among those was Dr. Schott of Germany and Bezley Thorne of England. These men held out hope to the heart sufferer.

The great modifying influence on the outcome of a cardiac lesion is re-education. The training of the individual to adapt himself to his capacity and surroundings. I prefer to treat people without removing them from their usual surrroundings. A person cured without transplantation is in a much better position than a man who is sent away and then must come back to take up the burden of life. Of course, it is much easier in every way to re-educate a person if he can go away to a cure resort. Much benefit in this direction is obtained by people who go to Europe. Up to the present time we have no well developed cures in this country.

I wonder how many of you have ever considered the difference between private and public practice in cardiological work. By public practice I mean all that work done in hospitals, dispensaries and teaching institutions and upon the poor or pauperized classes. By private practice I mean work that is carried on with people with whom the relationship of private physician is established.

In public practice one encounters a group of people many of whom have developed heart disease under conditions of irregular living and the strain of continuous labor, or who have lived under bad hygienic conditions. Also, a group of people who as a rule do not regard minor discomforts and who are in a great measure fatalistic in their outlook upon life.

In private practice we often have just the reverse. We have people who develop cardiac disease under conditions of luxury and indolence; a group that do not disregard any personal discomfort and who can and will carry out any reasonable plan of treatment or change of environment.

In the former group severe organic disease is very conspicuous. In the latter group functional disorder predominates.

Then, of course, the man who draws his experience chiefly from hospitals must constantly have a great deal to do with the end results of an unsuccessful attempt to adjust heart sufferers to this environment. In public work the personal relationship of the physician may also carry with an unconscious but helpful psychotherapy but details of adjustment of diet, exercise and education in the use of drugs are lacking. There are many individuals in the public practice group who are invalids on account of the lack of adjustments but who,

if in the private practice group, would pursue active and useful lives.

The practice of cardiology which I am attempting to describe at this time pertains only to the private practice group. Success in the treatment of the cardiopathic person depends upon personal relationship in a great measure. This was very much impressed upon me as a young physician when a member of the family of one of our greatest physicians came under my care one summer and after much detailed attention I was fortunate in improving her condition. This happened in the summer, a long distance from New York. When I returned in the Fall I expected, of course, that the doctor would become her principal adviser as he was very fond of her. He reviewed the whole situation carefully and finally when I met him he said, "I want you to go on with this case. I will give you every help that I can, but it is a one-man case and I think that my cousin will do much better if I do not treat her." This taught me a great lesson in the practice of cardiology, that a serious heart problem is a one-man problem and valuable as the consultation or conference is, the heart patient is much better for the well considered and well advised counsel of a single physician.

If therapeutics were a definite, clear-cut science it might be directed by a jury but the man who has developed a therapeutic sense often wishes to do things which he feels to be best but which he does not do if he can only do so after the effort of persuading a jury of physicians to agree with him. The good therapeutist often wishes he could give a single dose of a remedy to study the reaction of the person in his charge, planning his next dose upon the effects of the first dose, and so on. This is impossible when working with a jury.

Public cardiology is the practice of cardiology carried on in front of a jury, and in large institutions a pretty large jury, at that, including nurses, doctors, students, other patients in the ward and friends and relations.

The heart patient treated by one good doctor gets full and adequate treatment. With two doctors he gets what those two can agree upon and I have never yet seen an adequate, complete therapeutic plan come out of a conference of half a dozen consultants. The best results are reached when, if the physician finds himself insufficiently trained for the care of his patient, he associates with himself a coöperating consultant who carries the work along with him and the two, together, work out a continuous and logical plan. The time element in assimilating all the points of a difficult medical problem is important and the second conference in a serious situation is often much more productive of results than the first.

The proper practice of cardiology involves the continuous care of people. It has no place to my mind in that type of practice which constitutes prescribing for people for the cure of what they complain of at the moment for the relief of symptoms. This type of practice is demanded by the masses and is necessarily a legitimate activity of many practitioners but it has no place in serious cardiac disease.

There is no use in attempting to do good work in cardiology except under conditions of continuous observation. The true cardiologist is a very poor consultant. He cannot work quickly enough or complete his task well enough at one interview. The single interview consultation is much better carried on by the general medical internist. If the cardiologist is employed in a case he should be employed for continuous association. Otherwise this special training is pretty much wasted.

A follow-up of patients according to the methods recommended by many good thinkers and set forth not long ago in a pamphlet by Dr. Niles of the Cornell clinic is a great help.

In this sketch of the practice of cardiology as it has grown up and developed it has been necessary to omit all consideration of the theories and care of arteriosclerosis and of the many frequently occurring complications that come to cardiopathic subjects. In general, however, the best results are accomplished when heart, blood vessels and kidneys are considered as parts of one mechanism which cannot be considered apart from the brain, stomach and general nervous system. Also, everything must coordinate with a due regard to the personality of the man or woman whose life, health and happiness are to depend upon our efforts.

If I have presented an ideal picture of the practice of cardiology it is what I intended to do. Throughout I have enjoyed the sympathetic help of many in this association and I bespeak the same for all earnest workers in this special department of the healing art.

The Relationship of Precordial Stress, Blood Uric Acid, and Salicylate Therapy

By Milton A. Bridges, B.S., M.D., F.A.C.P., *New York Post Graduate Medical School and Hospital, New York*

A PERIOD of years ago, as the result of a fatality from angina pectoris, in a male thirty years of age, sufficient stimulation was produced to attempt to seek out further enlightenment concerning this much discussed entity.

This angina pectoris fatality occurred in the instance of a case that had been thoroughly investigated to the best of the available resources. This investigation consisted in several associated physical examinations, electrocardiographic tracing, complete chemical blood analyses, urine analyses, and basal metabolic determinations together with cardio-pulmonary roentgen examination. In addition, consultation of the highest calibre had been obtained. The only finding, physical, chemical, or otherwise, which differed from normal, was that of a mildly elevated uric acid.

Following the above incident, perusal of both private and hospiital records was made of all patients that had complained or still complained, of precordial stress. This large group of cases was still further restricted in so far that out of all the cases of precordial stress only those in whom a blood uric acid and blood urea had been determined were selected. In addition, further restriction was made in selecting only those cases in which blood urea nitrogen was considered relatively within normal limits.

Careful perusal of this series showed it to be noted that the mean uric acid reading was 4.77 mg. per 100 c.c. of blood. A corresponding series of uric acid readings of an equal number of cases selected indiscriminately, with the exception that precordial stress cases were omitted, yielded a mean average of 3.1 mg. per 100 c.c.* In order to anticipate within reasonable bounds, any error in laboratory technic, the majority of the blood determinations were made in two laboratories, one of which was connected with a large private hospiital, the other was a private laboratory under recognized supervision. The respective findings were frequently duplicated in a number of cases by part of the same specimen being sent to each laboratory.

In the light of the immense variation as to consensus of opinion in relation to normal blood uric acid determination, a survey of the vari-

*Bridges, M. A.—"Blood Uric Acid and Precordial Stress," Medical Times, October, 1926.

ous determined normals at different institutions throughout the country was made, with the result that the acceptance of 3.3, as being the upper physiological limit was determined upon.

Considering this figure of 3.3 as the upper limit of a normal reading it was deduced that in cases of precordial stress there tends to be an elevation in the blood, above the upper physiological limit, of the uric acid reading.

No attempt was made, in the light of the meagre information presented at that time, to establish any definite conclusion in relation to the findings. However, some vague association between blood uric acid and the symptom of precordial stress was suggested.

Since the publication of the material calling attention to this association, consistent accumulating records have been kept of various cases coming under observation, and an elevated blood uric acid has been almost constantly found in cases presenting the diagnosis angina pectoris vera. This observation concerning uric acid has been used in various instances in differentiating between the false and real angina pectoris cases, concerning which confusion in diagnosis might have occurred.

With this material at hand, an explanation of the relationship was neither vouchsafed nor possible with any definite feeling of assurance. Consultation with colleagues suggested that an effort be directed at the reduction in the blood of the uric acid reading and observations be made of the resultant effect upon the symptoms. At the present time this report presents a series of cases which have been under close observation over a considerable length of time in whom anti-uric-acid therapy was instituted.

Appreciating full well the medical haze, particularly in the minds of the most eminent cardiologists, which is associated with this far from clear entity, precordial stress or angina pectoris, efforts were made in each of the cases under treatment to have the opinion of at least one recognized cardiologist in substantiation of the presenting diagnosis.

Each case of the entire series, which number nine, was observed under practically the same regime. In no instance was hospitalization, in the sense of confinement to bed or prescribed periods of rest, etc., instituted. In all but two instances, each individual was allowed to continue at his customary daily occupation. The diet in each case was grossly purin free. The medications were salicylates in watery solution, or with an inert menstruum, or various of the phenylcinchoninic acid group. In the earlier cases of the series, dating 1923, the latter form of therapy was utilized. In the latter part of the observation, salicylates were used. In no instance was any further medication of any type or description administered other than in one or two cases, in which amyl nitrite ampules were used for the more severe attacks.

Realizing the conventional difficulties in presenting the pertinent details in such a series of cases, our intention is to sketch only briefly the salient features of each case as follows:

Case "W.S."
First Observation—March, 1923.
Sex—Male.
Age—51.
Initial uric acid reading—4.0 mgm. per 100 c.c. of blood.
Initial Urea N. reading—18.3 mgm. per 100 c.c. of blood.

Presenting a complete clinical and historical picture of angina pectoris with three or four severe attacks of stress daily.

Progress—Seven months later, with uric acid reading of 1.8 mgm. per 100 c.c. of blood, onsistently free of all symptoms.

Subsequent uric acid determination, October 5, 1927—3.5 mgm. per 100 c.c. of blood.

At no time has had a recurrence over the ensuing period of four years and ten months.

Therapy—Treatment was restricted to the phenylcinchoninic acid group.

Case "R.H."
First Observation—September 1925.
Sex—Male.
Age—67.
Initial uric acid reading—3.3 mgm. per 100 c.c. of blood.
Initial Urea N.—17.5 per 100 c.c. of blood.

Presenting a complete clinical and historical picture of angina pectoris with attacks three to four times daily of moderate severity.

Progress—Subsequent uric acid determination, November 1927—2.8 mgm. per 100 c.c. of blood.

Two years and two months later, persistently free of symptoms.

Therapy—Phenylcinchoninic Acid Group.

Case "J.B."
First Observation—Otober 1925.
Sex—Male.
Age—63.
Initial Uric Acid reading—3.53 mgm. per 100 c.c. of blood.
Initial Urea N.—16.8 mgm. per 100 c.c. of blood.

Text book clinical and historical picture of angina pectoris, with fifteen to twenty attacks of stress daily of a very severe form.

Progress—Fifteen months later, uric acid determination—2.0 mgm. per 100 c.c. of blood.

Twenty months later, uric acid determination—2.6 mgm. per 100 c.c. of blood.

In this instance complete relief from all symptoms was accomplished within a period of 10 days from the date of diagnosis and institution of treatment.

Upon the seventh day after institution of treatment, the blood uric acid had been reduced to 1.4 mgm. per 100 c.c. of blood. Upon the conclusion of ten days, attacks ceased completely. Subsequent to the initial cessation of attacks, the patient has at no time complained of recurrence of symptoms, this period comprising 27 months to date.

Therapy—The severity and frequency of attacks were so marked that hospitalization of moderate degree was adopted. The treatment in this instance consisted in saturation with salicylates.

Case "M.M."
First Observation—October 1924.
Sex—Male.
Age—50.
Initial uric acid reading—5.0 mgm. per 100 c.c. of blood.
Initial Urea N.—15.5 mgm. per 100 c.c. of blood.

Complete clinical and historical picture of angina pectoris, with four to five attacks daily.

Progress—Complete cessation of attacks seven days after institution of treatment, with coincident uric acid reading of 2.1 mgm. per 100 c.c. of blood.

While under subsequent observation, there was no recurrence of attacks, this period consisting in two months.

Contact with patient ceased December 1924.

Therapy—Treatment was restricted to salycilate saturation.

Case "C.A."
First Observation—March 1927.
Sex—Male.
Age—47.

Initial uric acid reading—4.8 mgm. per 100 c.c. of blood.

Initial Urea N.—10.2 mgm. per 100 c.c. of blood.

Severe clinical case of angina pectoris, with ten to fifteen attacks daily.

Progress—Eight days after institution of treatment, uric acid reading 1.4 mgm. per 100 c.c. of blood.

Subsequent uric acid reading, nine months later—3.0 mgm. per 100 c.c. of blood and 11 months later 2.0 mgm. per 100 c.c. blood.

This case was judged to be sufficiently severe to warrant hospitalization, and such was instituted without bed restriction.

Since the cessation of attacks eight days after institution of treatment, patient has had no recurrence to date, of original symptoms.

Therapy—The treatment consisted in salicylate saturation.

Case "F.C."

First Observation—April 1927.

Sex—Male.

Age—54.

Initial uric acid reading—3.5 mgm. per 100 c.c. blood.

Initial Urea N.—17.4 mgm. per 100 c.c. of blood.

Complete clinical and historical picture of angina pectoris, with frequency of ten to twelve attacks daily.

Progress—Upon last professional association, May 1927, patient was experiencing one attack a day.

Due to intolerance to therapy, other professional service was retained in home town.

Therapy—Salicylate saturation.

Case "O.D."

First Observation—April 1927.

Sex—Male.

Age—61.

Initial uric acid reading—4.2 mgm. per 100 c.c. blood.

Initial Urea N.—14.0 mgm. per 100 c.c. blood.

Clinical picture of angina pectoris with frequency of attacks two to three weekly.

Progress—One month later, complete cessation of attacks.

Symptom free to date.

Eight months later, uric acid determination—2.3 mgm. per 100 c.c. of blood.

Therapy—Moderate saturation with salicylates.

Case "J.H."

First Observation—June 1927

Sex—Male.

Age—55.

Initial Uric acid reading—3.2 mgm. per 100 c.c. blood.

Initial Urea N.—13.3 mgm. per 100 c.c. blood.

Clinical and historical picture of angina pectoris, with frequency of 25 to 30 attacks daily.

Progress—Complete cessation of attacks two weeks after institution of treatment; uric acid at that time—2.1 mgm. per 100 c.c. of blood.

No recurrence of attacks through the concluding two months of observation.

Clinically the patient also complained of a definite intermittent claudication, which abated coincidently with the cessation of the cardiac syndrome.

Therapy—Moderate salicylate saturation.

Case "L.W."

First Observation—October 1927.

Sex—Male.

Age—67.

Initial uric acid reading—4.0 mgm. per 100 c.c. blood.

Initial Urea N.—13.65 mgm. per 100 c.c. blood.

Clinical and historical picture of angina pectoris, with frequency of two to three attacks daily.

Progress—Cessation of attacks approximately two weeks following institution of treatment, with a co-incident uric acid determination of 2.1 mgm. per 100 c.c. blood.

No recurrence of attacks during subsequent observation of six weeks.

Therapy—Moderate salicylate saturation.

The general management of the treatment when the phenylcinchoninic

acid group was instituted, consisted in administering the medication in doses from 10 to 40 grains once to three times daily, in the middle of a meal. In the earlier cases, the medication was prescribed directly after meals, but it was found that the gastric tolerance did not admit of even moderate dosage, and hence the former suggested mode of administration was instituted.

In reference to the salicylate therapy, sodium salicylate was utilized, and the preferable route was decided as being per rectum. The dosage varied from 100 to 400 grains of sodium salicylate in a 50% aqueous solution, mixed with between 2 to 4 ounces of thin starch paste. This preparation was administered as a retention enema, immediately prior to retiring. The frequency of administration in several of the cases was nightly, in others, every second night. In one instance rectal intolerance was exhibited, showing itself in the inability to retain the enema.

Various combinations of rectal and oral administration were prescribed. Owing to gastric intolerance, at no time was over 40 grains of sodium salicylate administered by mouth. In all cases treated with salicylates, after the second or third day, tinnitus was complained of. On the presentation of this symptom, the dosage was either moderated, or the frequency diminished. In no instance during rectal administration, were gastric disturbances complained of. In no instance was a salilcylate rash exhibited. In two instances a transient allbuminuria was to be noted, which completely disappeared upon moderation or cessation of therapy. Haematuria, gross or microscopic, did not ensue.

Contrary to the prevalent opinion in reference to the deleterious effect salicylate are supposed to have upon the hemoglobin, in so far as it is supposed to be reduced under severe or prolonged administration, in all instances a casual Tallquist hemoglobin reading presented a gradual increase in the same.

Universally, upon the cessation of cardinal symptoms, the therapy was reduced in both quantity and frequency, the diet still maintained, and in those patients still under our professional care, no medication of this nature whatsoever has been administered since a moderate period following the cessation of their attacks.

The entire series of cases are nonselected ones, which have come for observation under routine office and hospital practice. No attempts have been made to select those presenting a spectacularly high uric acid reading, or any other differentiating characteristic.

In each of the above noted cases, we have been fortunate in having at least one, and in the majority of instances, several consulting confirmatory opinions by physicans of repute in order that a substantiation of the diagnosis could be initially instituted.

To date we are pleased to observe that of those cases still under our observation there has been no recurrence of the original presenting symptoms.

Summary

1. In a series of nine consecutive cases, suffering from angina pectoris, the mean uric acid reading was estab-

lished as being at or above the upper physiological limit.

2. Confirmation of the diagnoses was established by qualified consultation.

3. Therapy was directed at the reduction of the blood uric acid.

4. In all cases, complete cessation of symptoms was accomplished within a shorter or greater length of time following the institution of treatment, depending upon the mode of therapy.

5. In all cases definite response in the reduction of the blood uric acid readings was noted.

6. The hemoglobin determination in all cases presented a slow but gradual increase.

7. In several cases, a transient albuminuriia was encountered.

8. In no instance while under observation, have any of the cases recurred in reference to symptomatology.

9. At no time were any untoward salicylate permanent effects noted.

Conclusions

In dealing with a subject of such great import as the one under consideration, and bearing in mind the marked amount of investigation and research of one form or another that has been applied to this entity, it would be far from becoming, upon the meagre information at hand, to offer any satisfactory or complete explanation for this grave medical condition.

Conclusions should be more of the self-addressed query type, rather than dogmatic statements. Explanation, it is felt, cannot be safely vouchsafed for the results herein described. Certainly no assurance can be claimed that uric acid produces angina pectoris, and also no assurance is to be offered that in the reduction of uric acid rests the cure for this often fatal entity. It is barely possible that some undetermined element in the blood, a product possibly, of faulty metabolism, might be the chief offending factor which precipitates this distressing cardiac syndrome.

Suffice to say complete alleviation has been afforded in each of the aforementioned instances, by the suggested therapy, with a coincident decrease in the blood uric acid reading.

(Appreciation is expressed to Herman O. Mosenthal, M.D., and John A. Killian, Ph.D., for their co-operation in the above work.)

Editorial

MEDICAL OBSERVATIONS IN HAWAII

I. *Human Germ-Plasm Mixtures*

To the medical man who is interested in heredity and genetics the Hawaiian Islands offer a fascinating field for the observation and study of racial hybrids and mixtures. There are said to be at least thirty-seven distinct human mixtures of germplasm in Hawaii. One can well believe this and even consider the possibility of a much greater variety of mixed bloods. For two centuries, since the visit of Captain Cook to the islands in 1728, this germinal melting-pot has been in action, and the results of these two centuries in the production of well-defined human hybrids are amazing to any one who has passed his life, or the major part of it, in lands where the human population is fairly homogeneous as in the United States. Nature has been forced to a wonderful genetic experiment in Hawaii, and it would seem at first glance that here is a wonderful field for genetic study and conclusions. The opportunity for a scientific study, however, is not as promising as it appears to be on the surface, since the family histories are very unreliable, and inaccurate beyond the one single generation, and the peculiar habits of the natives and their hybrids in giving away and exchanging their progeny lead to very heterogeneous family combinations. It is not uncommon to see in one family girls representing one hybrid and the boys another, and to have this explained as due to an exchange of excess girls for excess boys. In spite of those complications, however, there is a fertile field in the islands for human genetic study, and so far very little has been accomplished in this direction. It seems too good an opportunity to be untouched. The first impression of Honolulu is, of course, that of the Oriental character of the mass of the population; Japanese and Chinese, and their various hybrids predominate, the native Hawaiian and his hybrids is decidedly in the background and overshadowed by the Oriental. Only in the more distant rural portions as in certain parts of Kauai and Hawaii does one get an idea of the original native. His is a disappearing race, the number of pure-blooded Hawaiians is rapidly diminishing and the race is being lost in its many hybrids. The almost total lack of a sex-morality in this race has been its undoing, and the absence of any sense of racial purity and pride in race-preservation has led in these two centuries of contact with alien races to such mixtures and dilutions of its germ-plasm, that the race is doomed to extinction. As to the value of these hybrids opinions in

the islands differ somewhat, but the most commonly expressed one is to the effect that the Chinese-Hawaiian cross is the best of the hybrids and the Portuguese-Hawaiian the poorest. Conclusions based only on a three-weeks' observation are never safe, of course, but the editor would agree to this commonly-expressed opinion. As to the hybrids between native blood and that of Europeans and Americans first impressions and conclusions based upon them are perhaps dangerous but in general the impression of an inferior type of hybrid was formed, a lower morale and a greater instability of character and inferior physical development in addition. Some of these hybrids were of extraordinary interest—Irish-Hawaiian, Scotch-Hawaiian, Yankee-Hawaiian, etc., some personally attractive, especially the Irish mixture, but all of these hybrids that were seen were physically slender, slight and more or less weak in build. Sooner or later all revealed evidences of an inferiority complex based upon their inheritance of native blood. The impression made by all of them upon the writer was that these hybrids of Caucasians and Hawaiians were distinctly pathetic. As far as could be determined their resistance to some diseases is poor but higher to others. The native Hawaiian has a relatively high susceptibility to tuberculosis, but this susceptibility is lower in the part Hawaiians than in the natives. This increased resistance to tuberculosis may be gained from the Caucasian blood. On the other hand the great majority of new cases of leprosy developing in the islands were, at the time of my visit, in the pure Hawaiians and their hybrids, the latter in excess. As far as this disease is concerned, the susceptibility of the native to it seems to be passed on to its hybrids. The opportunities for drawing any conclusion as to the reaction of syphilis in the native race and its hybrids were few, but the few severe cases seen were in Caucasian-Hawaiian hybrids and not in the pure native. Skin affections of many kinds were noted in the native race and in its hybrids. In the report of Dr. H. W. Chamberlin, Director of the Bureau of Tuberculosis, it was shown that for the last year the number of new cases and the number of deaths decreased among part Hawaiians, Filipinos, Caucasians and Spanish, but increased among Hawaiians, Japanese, Porto Ricans and Chinese. Koreans showed a continuing increase in the death rate, but a decrease in the number of new cases. The death rate for tuberculosis in the pure native Hawaiians was 410 per 100,000. There were 4176 cases of tuberculosis and 224 deaths from this disease in 1928. It is the most important single disease of the islands. Last year infant deaths constituted 24.1 per cent of the total mortality, the present year's death rate being 83.60 per 1000 births. In 1928 there were 44 cases of leprosy reported, a decrease of 23 from the preceding year. Diphtheria has been increasing in the islands during the last five years; in the past year there were 420 cases reported with 52 deaths. Special plans are under way for a campaign against these two diseases, including the better reporting of tuberculosis, and the use of antitoxin. Eight cases of bubonic plague

were reported last year, there is an endemic center along the Hamakua coast in an area 20 miles long by 3-5 miles. As this tract is largely jungle it can be seen that the eradication of rodents (plantation rats) in the region is practically impossible. As of June 30, the estimated population of the islands is 348,767, an increase of 15,347. Tht birth rate has risen from 27.16 per thousand to 33.84 while the death rate has dropped from 11.87 to 11.70. Of the total population 228,276 are American citizens and 120,491 are aliens. The American from the States finds a certain difficulty in the recognition of the fact that the individual members of the 228,276 mixture representing hybrids of so many diverse races are his brothers—they are American citizens and very proud of that fact. One is naturally surprised to hear a dark combination of Hawaiian and Portuguese exclaiming loudly in an altercation with some other equally marked hybrid that he is a "white man," an "American." These people are quick to resent any implied suggestion of differentiation from the Americans on the "Coast." They resent also any suggestion from the outside as to the inferior value of certain hybrids, although they freely express their own views, and betray certain strong class, or rather racial, antagonisms and prejudices. Nevertheless this does not keep them from intermarriage with the other race when the individual desires such a union or finds it convenient. In appraising the value of the hybrids of the Caucasian and Polynesian or Oriental races it must be borne in mind that many of the white fathers were whalers, sailors, beach-combers, derelicts, etc., and the value of the resulting hybrid is largely that of individual heredity rather than of racial values. There is much to be said on the other side about the racial mixtures in the Islands. Common courtesy or politeness is much more evident on the streets of Honolulu, particularly in the Oriental quarters, than in any American town or city. All of these hybrids with very few exceptions present a cheerful, smiling face, they are clean and dressed in clean fresh clothes—I saw only one dirty person in the three islands visited. They are fond of children and passionately fond of flowers. Their small simple shacks are surrounded by flowers and food-bearing trees, and the great majority of them show the possession of a well-developed esthetic sense in the use of flowers about their homes. In this respect they are far ahead of the average rural inhabitants of the States. Children are everywhere—Chinese and Japanese families of 6-8-12 or more—smiling, clean and well behaved and living under economic conditions that could not be successfully met by the American without succumbing to dire poverty, degeneracy and disease. In spite of all this pleasant outward picture the medical mind sees beneath these attractive pleasant childish countenances too many evidences of insufficient nutrition. They are almost all anemic, show a distinct pallor and nowhere in the islands was a rosy-cheeked child visible. The same is true of the white children there, so that climatic factors are responsible to some extent. The problem

of under-nutrition is of course most marked in the case of infants, and the latter show the economic deficiencies much more than the older children. The medical visitors to the Islands returns to the States with mixed feelings centering chiefly about the problems of human hybridization and its ultimate result, and the effects of a low economic status upon the vitality and future development of the hybrid products of diverse races.

DEDICATION OF THE MEDICAL CENTER, NEW YORK

The dedication of the new Medical Center of New York is an event of great interest to all teachers and practitioners of medicine in the country. Dr. Lambert's address on this occasion contains so many points concerning the future of our profession that we consider it worth while to reproduce it here. Although inspired naturally by the local conditions it has a broader relation to the whole field of medical teaching and practice throughout the United States, and we reprint it primarily because of its broader significance. Both the teaching and the practical sides of Medicine are in a state of great instability at the present moment and the future of each is difficult to read. Any great local event in the development of medical schools is of great importance to the country as a whole.

Hospital Clinic and Medical School

By Samuel W. Lambert, M.D.

On this occasion of mutual congratulation for Hospital and University it is my pleasant task to present the medical significance of the amalgamation of school and clinic under one roof. These buildings typify the ideals and dreams that have stimulated the teachers of medicine of the College of Physicians and Surgeons in their work for many years. I appreciate to the full the honor which has been done in delegating this opportunity to me.

The Presbyterian Hospital founded in 1868 represents the humanitarian impulses of one of the Christian Churches in this City to carry out its whole duty to the poor of New York without regard to their creed, nationality and color. It is a direct descendant of the sanitaria of Greece which developed from the Asclepieia or temples of Aaesculapius, and of the hospitals which begun by the Crusaders of the 11th century spread over all of Christian Europe in the following 200 years. For forty years the Presbyterian Hospital was one of the big four in this City, its attending staff included the leaders of the profession, in fact it divided the time of its physicians and surgeons in a friendly way with some of its fellow institutions. Such was the habit of the day. The Presbyterian Hospital was always a leader in granting to its medical board the best of facilities for the care of the sick and opened its wards for the teaching of students to any extent that was requested by its attending medical and surgical staffs.

The College of Physicians and Surgeons was founded in 1807 under the auspices of the Medical Society of the County of New York, as an effort by the organized profession to

improve the methods of teaching then in practice in their City. It was a rival of the existing Medical Department of Columbia College. This new School was a success from the start, and in 1813 absorbed the medical faculty of the College, and Columbia went out of business so far as medical education was concerned for some 75 years. In 1890 the faculty of the College of Physicians and Surgeons saw the error of its way as a proprietary school, appreciated the trend of medical education and was among the first of the great proprietary schools of the Country to establish a university connection and merge its corporate existence in Columbia University. As the Chairman of the Board of Trustees of Columbia University has just said, this convocation will commemorate the logical results of these endeavors of the past and dedicate this latest development of a university medical school combined with a group of hospitals into a great medical center. This example is soon to be repeated and medical education in New York will be the gainer, and this Columbia-Presbyterian Hospital foundation will also be the better for the friendly rivalries which will follow the growth of the second medical centers now being planned for by the Cornell University-New York Hospital authorities.

The science of medicine is not an exact science governed by laws and rules of mathematical accuracy. Rather it is empirical, founded on experiment and experience. The practice of medicine has to consider too many variables in the application of its theories and its art ever to become fixed and unchangeable. Medicine deals with the living bodies of man and its living cells, and with the living germs of disease. It concerns itself with the antagonism of the one group of cells contesting with the other group of cells. When the cells of the human body are in the ascendant the result is health, when the bacterial or other noxious cells are triumphant, the result is disease. Medicine is concerned with the chemical toxins of disease and the chemistry of the organic and inorganic poisons of the vegetable and mineral world. Medicine has to consider the varying resistance to disease of the human organism and equally the influence of the changing virulence of the bacterial causes of acute infections. All the facts having to do with these medical problems are as yet undiscovered and in consequence medical science is constantly changing the theoretical explanation of observations which are noted in the laboratory by the scientific worker and at the bedside of their patients by the practioner of the clinical art.

The soul of the medical school and hospital is the medical clinic and every specialty is an offshoot and growth from it. The organization of a medical clinic today is very complicated. The internist is the governing personality but the hospital is no longer in the hands of a single medical practitioner, the medical staff consists of a chief and several grades of associates and assistants whose work is distributed through the wards and the clinic for ambulant cases. No distinction is made between the patient in the hospital and the patient in the

dispensary. The record of the patient's illness is a unit whether he be under treatment in the dispensary which should be considered his regular medical adviser or in a bed in the ward the use of which is an incident in the course of his disease to be occupied by him only when too ill to be treated at visits to the dispensary and as such intervals as may be necessary. This medical staff who have control of the determining of the diagnosis and of directing the patient's treatment are assisted by the many scientific departments whose work is subsidiary. The medical clinic must have its department of chemistry to investigate the conditions of digestion, of the blood, and of the secretions; its department of physics to apply electricity in the form of X-ray or of the electrocardiograph; a department of physiology to study the complicated actions of the internal secretions of the body; a pathologist to furnish the results of microscopic examination of secretions and diseased tissues removed from the patient for diagnosis; and a bacteriologist to supply cultures for diagnosis and antitoxic serums for therapeutic purposes. The activities of a medical clinic are not limited to the care of patients. The hospital staffs of today devote a large amount of time to experimenting with the phenomena of health and disease, and to the end that the diagnosis and treatment of those ill is improved not only in the clinic of the investigator but throughout the entire medical world. The medical clinic must be in charge of a staff of diagnosticians who can correlate and employ the results furnished by their various subdepartments of science. The diagnosticians must be more. They must also be teachers who can understand the mental processes of the beginner and get down to the level of the medical student, to meet his doubts and difficulties not only with appreciation but in a sympathetic way. The reputation of the medical clinic in any combination of school and hospital is still the chief factor which determines the choice of the school by a prospective student. Forty years ago there were three large medical schools in this City as there are today and the medical student of that day was attracted to each in accordance with his desire to be taught by a Delafield, a Janeway or a Loomis. One thinks today of Munich as a center of medicine in terms of Friedrich Műller, and formerly as the professional home of v. Ziemssen. One thought formerly of Vienna as the site of the clinics of Skoda and Bamberger, and now as that of Wenckebach. Paris reminds the medical man of the work of Louis and Widal.

Much has previously been said of the methods of teaching. Today there is but little difference in the methods employed in Germany, in England, France or the United States. Methods are far less important than the personality of the teacher. When I last visited Munich I found Műller teaching the rudiments of physical diagnosis to his youngest students. Theodore Janeway held a medical clinic in this College, also for second year men. The American schools of medicine were the last to adopt modern methods of education. But when

the schools were at their worst the students of medicine could secure the best of training at the bedside in the hospital from private preceptors who were up-to-date long before the medical schools appreciated what was going on. When the reform came it came from within the profession itself and the elimination of the weaker schools by consolidations and discontinuance has reduced the number of schools in the United States from one hundred and sixty odd to eighty. This improvement in medical education was helped by the drafting and passage of medical practice acts which have formulated conditions and requirements for licensure.

The curriculum of every medical school can unquestionably be improved. The control now held over it by law is too fixed and inelastic. The administration of the law by state departments could well be limited to the examination of the graduates of the schools and give less time to the oversight and enforcement of a measure of education by the yardstick of time devoted to a study rather than to a measure of the result attained in acquiring knowledge.

The youngest medical student cannot begin too early to discover that the diagnosis of disease is not a simple problem in mathematics. No two human beings react exactly the same to the same infection. The medical student should see at the bedside what pneumonia patients look like at the same time that he is studying the diseased lung and the method of growth of the causative bacteria in the laboratory. He should be able to correlate the surgical treatment of fractures with his study of anatomy.

These buildings of the Medical Center present the latest fulfillment which has been built to carry out the complex requirements of an art and a science. Every necessary detail has been supplied for the medical clinic and similar facilities have been furnished for surgery including urology and for obstetrics. Under the same roof all the activities of the College of Physicians and Surgeons also are housed and provided for. The Neurological Clinic and the Babies Hospital have become integral parts of the Medical Center, and have built partly separated buildings and preserved a separate board of managers. The details of incorporation may be different so long as the unity of interest in medical education is preserved.

The organization of the Medical Center cannot be considered complete until every specialty of medicine and surgery including the Crocker Special Research Laboratory has not only its dispensary but also its wards for the care of its patients when treatment in bed is required for them.

This center for medical training is so well conceived and developed that it seems an untimely criticism to suggest that anything is lacking. I cannot refrain, however, from calling attention to a necessary addition which will round out the professional life of the students and instructors, especially the younger workers in the hospital and clniical laboratories. It is full time that some university shall make provision for the home life of the students of medicine. It

would be an innovation but it would be a great help to foster a professional spirit among them if dormitories and a common dining-hall can be added to the group of buildings which are being planned for and developed upon this site. It is timely that medical students who devote at least two-thirds of every twenty-four hours to study and practical work in securing a medical education should be furnished with a physical means of leading a life in residence in more or less intimate social associations with the younger enthusiastic instructors outside of their professional intercourse. *I do not expect or suggest that such an addition to the medical center would lead to anything approaching a cloistered life. On the contrary medicine today cannot be shut up in any monastic enclosure and no group of physicians who are teachers can eliminate from their professional activities a contact with the outside public without losing a broadening and enlightening point of view.*

The profession must be careful not to lose its influence on the rapidly developing activities of sanitation, and preventive medicine. This Medical Center contains the germ of such a department supported by the endowments of the De Laman bequest. Activities in Public Health are being carried on throughout the world in a most efficient manner under the support of special philanthropic foundations and the universities are threatened with a loss of what should be one of their chief services to the public. *What is true of the Medical Center as a whole is equally true of every individual in it from the highest to the lowest and there should never be promulgated a regulation or law of the university or hospital, which will prevent any appointee on the medical staff from devoting what time he may to extra mural work connected with his profession. His work in education in the medical center must always be his chief occupation and this is a question for each individual to decide for himself, and as he may choose either to abstain from or to undertake such duties he should be neither restrained nor compelled in the freedom of his choice. The clinical teacher who is an active investigator in a laboratory will be the better for an experience in practising the art of medicine outside of the walls of his hospital even if that experience be a limited one both in time and in amount, and the medical consultant who is a teacher must have had an experience in the technique and atmosphere of the scientific laboratory if he is to give his students the best that is in him.*

The old method of constructing a hospital spread out over a large plot of land in separate pavilions has been changed into this newer one of superimposing one pavilion on another and utilizing the air spaces above the ground,—I had almost said the heavens above. As far as the variety of scientific languages that are to be spoken here are concerned this is a veritable Tower of Babel but in that fact lies not its disunion but its firmest foundation. In the point of view of medical administration the dispensary of Vanderbilt Clinic will become

not only the admitting office but the discharging office, not only the distributing office but the executive heart of the whole institution. In it there will be a department for every specialty even of those allied institutions which are building on adjacent plots their own hospitals for specialties which have not been included in the original plant and which will have to be represented by ambulant clinics within the walls of the Vanderbilt Clinic. The dispensary in the modern conception of a medical center is the controlling factor of the whole. *The medical center is recognizing as a branch of medicine the closely allied specialty of dentistry and the inclusion of the school and clinic for dental and oral surgery marks a new departure in the organization of a university school of medicine.*

One of the latest developments in medical education has been to recognize that a school of a certain size can educate only a certain number of students. The old method of unlimited admission of as many students as may apply and of trying to teach medicine to them by theoretical lectures alone is dead. A medical teacher also cannot be required to repeat his instruction to groups of students going over the same work too frequently, destroying his initiative, and converting a useful scientist into a mechanical performer. What number of students shall make up an educational unit for any school will depend on the size of the hospital rather than on the size of the laboratories because separate groups of instructors can be rotated in the same laboratory rooms on different groups of students while the clinical staff of a hospital cannot be changed periodically without detriment to the care of the patients and the development of medical science in the hospital. *New York City contains many hospital plants which are manned and equipped for teaching purposes and which are used but little for the purpose. No hospital can fulfill its complete purpose or develop its full power unless it adds some system of education to the active work of the medical staff. Whether the future for these hospitals lies in devoting themselves to graduate instruction or whether any of the existing medical schools can find a solution by effecting alliances with more or less distant hospitals to benefit both the university and the independent hospital depends upon the future organization of medical education. It would seem a shame that the facilities of New York for education which are now neglected and unused should not be better employed than at present.* One thing is certain, it is not good for undergraduate students to receive their only impression of clinical medicine from a single institution or from only one instructor, however brilliant he may be. Different minds work in various methods in reaching conclusions in medical diagnosis and treatment. The teacher with a logical and mathematical mind will present to his students a more exact picture than will the diagnostician of the imaginative and artistic type, and yet both may be successful in medicine for both must be artists to succeed in the art of medicine, and imagination is not necessarily lacking to a mathematician.

Alice experienced her adventures in Wonderland in the imagination of a successful student of mathematics.

Medical education demands six years preparation before eligibility to practise is acquired and it should be demanded of every student further that he have one year of hospital internship before he is accepted by the State for licensure. It would seem wise that this extra year should be under the control of the school rather than the State, and it is no new thing to suggest that the degree of Bachelor of Medicine should be rehabilitated and given at the end of the present medical course and that the degree of Doctor of Medicine should be reserved to a hospital graduate after at least one more year of supervised medical training.

American medicine began and was built up in the spirit of scientific doubt and investigation first preached by the ancient school of Greece. These ideals were inherited from the London of Sydenham and the Leyden of Boerhaave, through the teaching of Cullen in Edinburgh and of John Hunter in London. It was developed by the spirit of France in the personalities of Bichat, Laennec, and Louis. It was made scientific by the genius of the Germany of Johannes Müller, Virchow and Ludwig. It inherited its methods of teaching from all of these and they were crystallized especially through the clinics and laboratories of Vienna: of Neusser and Kolisko. *The College of Physicians and Surgeons has built up its own traditions through its pioneer physiologist Dalton, its clinician and pathologist Delafield, its surgeons Parker, Sands and Bull, its exact and critical scientist Prudden, and its anatommists Sabine and Huntington.* The spirit of commercialism has never yet tarnished its reputation. The discoveries of its laboratories and its clinics have been free to all the world. It may seem strange to emphasize such a fact which should be self-evident but in these days the seductions of the patent office have led more than one university professor into practices that the profession of medicine has always shunned and should continue to condemn. The future of this School is assured if it is never forgotten that it is a school of medicine, that its scientific departments should be in the hands of chiefs who are first doctors of medicine and scientists in addition. In making this statement I do not forget the epoch-making work in medicine of the chemist Pasteur. He is the exception that proves the rule, and every time that this rule is broken the burden of proof as to the wisdom of its act, is placed squarely upon the shoulders of every medical faculty which dares again to make an exception. *Every department in this medical center must be scientific but it must not happen that the scientific spirit shall destroy the clinical spirit. The fact must be remembered that the hospital and the school are working for the study of the disease of man, its diagnosis, and its cure.* The science of medicine should never take precedence and exclude the art. You have placed over the main entrance door of this Institution a quotation from an ancient Book of the Hebrews: The wisdom of Jesus, the son of

Sirach, or Eccleciasticus,—may I quote it more completely:

"Honour a physician with the honour due unto him
For the uses which you may have of him:
For the Lord hath created him.
For of the most High cometh healing, and he shall receive honour of the king.

The skill of the physician shall lift up his head:
And in the sight of great men he shall be in admiration.
The Lord hath created medicines out of the earth;
And he that is wise will not abhor them.

And he hath given men skill,
That he might be honoured in his marvellous works.
And of his works there is no end;
And from him is peace over all the earth."

Abstracts

The Reactions of the Body to the Short Cold Bath. By W. H. Riley, M.D. (Bull. of the Battle Creek Sanitarium, August, 1928, p. 129).

As a result of a thorough study of the effects of the short cold bath upon man Riley concludes that it increases the circulation and nutrition of the skin, increases muscle tone, increases muscular endurance and capacity, lessens muscular fatigue, increases the force, and lessens the rate of the heart beat, increases the tone and nutrition of the blood vessels, increases systolic and pulse blood pressure, decreases diastolic pressure, stimulates and improves the circulation, increases the depth and rate of respiration, increases the oxygenation of the blood, increases absorption of oxygen, increases the metabolism and chemical changes of the body, increases the production and elimination of CO_2, increases heat elimination and production, increases the number of blood elements and hemoglobin in the blood, improves the appetite, stimulates digestion, increases peristalsis of the digestive tract, helps to relieve constipation, increases the activities of the kidneys, increases the output of total fluid, solids and urea in the urine, increases the normal irritability and conductivity of the nerves, improves nerve tone, and is a general tonic. The short cold bath is very useful in all asthenic and neurasthenic states and in all chronic diseases where the different functions of the body are below normal. It is useful in various digestive troubles, constipation, different forms of anemia, and in cases where the circulation is below the normal. It is very valuable in improving vasomotor tone and the tone of the heart muscle and in cases of low blood pressure. There are many individuals who lead a sedentary life and who develop a weak heart muscle and a condition in which the muscle tone of the heart is greatly decreased. A short cold bath repeated daily is one of the best heart tonics when properly used. In cases of severe diseases of the heart it should be used continuously and care should be taken that too cold applications are not made in cases in which the heart muscle is very weak. It is very valuable when the metabolic rate has dropped below the normal as in hypothyroid conditions, myxedema, and in all conditions in which metabolism and oxidation need to be stimulated. It is also valuable when properly used in cases of diabetes mellitus as it will aid in burning up the excessive amount of sugar in the blood. It is also useful in obesity and many other diseases. A great deal of skill may be shown in prescribing the short cold bath. It is important that the temperature and duration of the bath be suited to the needs of the patient. Too long an application or too large a dose of cold might do harm. The dosage of cold should be measured out by the physician with as much care as he would measure out a dose of medicine for his patient. The following cautions and contraindications should be observed. A short cold bath should never be taken when the body is cold. In this condition a warm bath is indicated rather than a cold one. It is usually a good plan to take a warm bath before taking a cold one, or at least to have the body warm. If the body is already warm, it may not be necessary. A short cold bath should never be taken when the body is tired, as it increases the activity of all the organs of the body and liberates energy. When one is tired his ability to react to the short cold bath is greatly lessened, and consequently he cannot get as much good from it as when he is rested. There are certain conditions and diseases of the body in which the short cold bath may be contraindicated or should be used very cautiously and in small doses. In conditions of shock and collapse the use of cold is contraindicated. During the two extremes of life, that is, in in-

fancy and old age, cold should be used very cautiously. In diseases of the kidneys the application of cold water to the body should be used very cautiously, and in advanced disease of the kidneys it is contraindicated. There is a very close relation between the kidneys and the skin, and in advanced diseases of the kidneys the application of cold to the surface of the body may greatly interfere with the function of the kidneys. In cardiovascular diseases and arteriosclerosis, particularly in the advanced stages of these conditions, cold should be used with caution and in small doses, also in high arterial hypertension. In patients suffering from an apoplectic stroke or in the hemoplegic state following apoplexy cold should be used in small doses and cautiously. In hyperthyroidism and in all conditions where the metabolic rate is above the normal, a short cold bath is contraindicated, as it increases the metabolic rate. In cases where cold should be used with caution and in small doses a short cold bath may often be used to good advantage in the form of a cold wet hand rub, cold mitten friction and cold wet towel rub, or some other similar mild application of cold. By these methods the tonic effect of the cold may be obtained without aggravating disturbing symptoms.

Studies in Experimental Syphilis. VIII. *On the Localization of Syphilitic Lesions in Inflamed Areas.* By ALAN M. CHESNEY, M.D., THOMAS B. TURNER, M.D., and CHAS. R. HALLEY, M.D. (Bull. of the Johns Hopkins Hospital, 1928, XLII, pp. 319-334).

These workers present a series of experiments in which rabbits with either healed or granulating wounds (or both) upon their backs were subsequently inoculated intratesticularly or intravenously with a virulent strain of Spirocheta pallida. In each instance syphilitic lesions developed in the scars of the wounds. These lesions exhibited a marked tendency to conform to the pattern of the scars. The incubation period of the lesions developing after intravenous inoculation corresponded closely with that of lesions which develop at the site of inoculation after subcutaneous injection. From this it is inferred that shortly or immediately following intravenous inoculation the spirochetes reach the scar and are deposited there. The histories of two patients are presented in whom syphilitic lesions developed in previously traumatized areas of the skin, when the syphilitic infection was acquired subsequent to the injury. It is concluded that recent non-specific inflammatory reactions of the skin of both rabbits and human beings, resulting from wounds, constitute foci favorable for the lodgement and growth of spirochetes coming from within the body, and predispose to the evolution of syphilitic lesions in those areas. These findings are in accord with old and well-known clinical evidence as to the predisposition of traumatic lesions in syphilitics to the development of gummatous lesions. Other experimental work by Chesney and associates has shown that granulation tissue in the rabbit appears to constitute a relatively unfavorable environment for the survival and growth of streptococci and staphylococci, whereas it appears to offer a favorable locus for the survival of the spirochetes of syphilis. This difference in behavior of granulation tissue in the rabbit to different kinds of pathogenic microorganisms makes it difficult, if not impossible, to formulate a general principle, applicable alike to all types of bacteria, regarding the susceptibility of granulating wounds to bacterial infection . The explanation of the difference in the reaction of granulating wounds towards syphilitic infection on the one hand, and towards streptococcic and staphylococcic infection on the other, is not by any means clear, and must be left for the future to determine. Factors other than mechanical must operate. but what they are we do not know at the present time.

Gastritis phlegmonosa (Magenphlegmone). By H. FINSTERER (Ergebn. d. Chir. u Orthop., 1928, XXI, 543).

Three cases of this relatively rare form of gastric disease are reported in detail, and their pathogenesis and clinical features discussed. In diffuse phlegmon the submucosa shows the most severe changes; the entire stomach may be involved, or the infiltrating process may be confined to one portion of the organ, as the pyloric region. The latter form is to be differentiated from the so-called gastritis suppurativa abscedens in which there are one or

more sharply localized abscesses. 78 per cent of the cases of phlegmonous gastritis have shown the presence of streptococci of high virulence. The patients usually die within 24-48 hours after the appearance of the acute symptoms. The affection is found almost exclusively in men of the laboring class, at about 40-50 years of age. The clinical symptoms consist of severe pains and distress in the upper abdomen, nausea and vomiting. The diagnosis is usually first made at the operation or autopsy. The prognosis is wholly bad in the diffuse form; in the circumscribed form surgical incision of the abscess and drainage may lead to recovery. Out of 17 cases in which resection was done 15 recovered. Among these cases were very severe ones with acute onset. It is probable that phlegmonous gastritis is of more frequent occurrence than it is now generally supposed to be.

The Increased Mortality Rate of Cancer. By H. E. Eggers (The Jour. of Cancer Research, March, 1928, p. 9).

The increase in the reported mortality rate of malignant disease has attracted popular attention, and has been used as propaganda in various publications intended for the instruction of the laity in a knowledge of cancer and its possible prevention. If these statistics are to be taken at the face value of the figures themselves the death incidence for cancer has grown rapidly. It does not necessarily follow that any causes are operative in this increase other than the greater survival of a large portion of the population to an age at which their cancer susceptibility shows itself. From 1900 to 1917 there was a practically constant rate of increased mortality both for cancer and the degenerative diseases considered as a whole. Throughout this period the ratio of cancer deaths to those from the degenerative diseases remained almost the same, fluctuating around an average of 0.198. The individual degenerative diseases, while showing a fairly constant rate of increase, fluctuated more than did the group as a whole. With the occurrence of the influenza epidemic of 1918 all of the diseases peculiar to advanced age showed diminished death rates. This diminution was very transient for cancer; and apoplexy was somewhat longer continued for organic heart disease, and was in 1924 still present almost to its original degree in the case of chronic nephritis. While the cancer death rate had resumed its interrupted normal trend by 1921, the degenerative disease ratio was still unduly low in 1924, due in great part to the reduction of deaths from chronic nephritis, and in smaller part to the reduction of deaths from diabetes. Aside from the exceptional course of the chronic nephritis death rate, cancer and the combined death rate from the other usual diseases of advanced age show an almost strictly proportionate rate of increase for the twenty-five year period. Unless there has been an actual relative decrease in cancer incidence in the period covered here, increased accuracy in diagnosis should have been reflected in an increase of cancer over that of the other diseases of similar age distribution, since cancer should in all probability be more frequently missed than erroneously diagnosed at present. There is no indication of such an increase during the twenty-five years of this report. If human mortality statistics are a poor thing—which undoubtedly they are—according to present indications they seem likely to remain so until the time of universal autopsies—and then their value will depend upon a very high standard of accuracy in the pathological diagnoses—also perhaps incapable of realization in this country under present conditions.

Ringworm of the Hands and Feet. (United States Public Health Service, Bull. Sept. 18, 1928).

Recently it has been pointed out by Surgeon General H. S. Cumming, of the United States Public Health Service, that within the past few years throughout the whole United States many persons have been affected with an eruption of the hands and feet that is most marked during the hot weather. Information is slowly spreading among the public that in many instances this trouble is due to infection with a ringworm parasite. Medical knowledge of ringworm of the hands and feet is comparatively recent.

The disease is remarkably frequent, and it is probably that at least one-half of all adults suffer from it at some time. In the University of Pennsylvania a careful survey

of all students showed that over 60 per cent were affected with the ringworm organism. This work was definitely proven and not mere clinical diagnosis, for organisms were found in all cases. It is met with in every part of the country and is more frequent in the South than in the drier and colder climates.

It is said that in the Gulf States practically the entire population has had the disease at some period.

Almost everyone who uses a swimming pool, a golf club, an athletic club or any place where there is a common dressing room has the infection upon his feet. It is highly probably that the development of club life, the great increase in the number of swimming pools, and probably the general tendency of the American public to spend a certain amount of time in hotels, is largely responsible for the increase in this disease.

Ringworm of the hands and feet is caused by a vegetable parasite which is a distant cousin of the well-known mould that grows upon stale bread. In addition to living upon the human body it can probably live and grow elsewhere, and can resist drying for a long time. In fact, it is a remarkably resistant organism for it takes at least fifteen minutes of boiling to kill one. There are a number of varieties of ringworm parasite and it is highly probably that some are much more difficult to cure than are others. Unfortunately, at the present time, more exact knowledge on this point is needed.

Any type of person can be affected, whether well or ill. Food has nothing to do with the disease. Even the much talked of acidosis can hardly be credited to be the cause. The disease is much more prevalent during heated spells. Any occupation that entails long continued heating of the feet may be a predisposing cause or may aggravate an attack. Hot floors are bad. Feet should not be kept upon a radiator.

The disease is usually acquired by walking barefooted where the unshod have trod. Bath mats are justly blamed, and it is probably that ringworm can be acquired from them just as warts upon the soles of the feet can be. As already mentioned, common dressing rooms are probably the most frequent places where the disease is picked up. However, it can also originate in hotels and from the use of infected towels or soap. There is no good proof that the water in swimming pools is in any way responsible.

In many instances either feet or hands alone are affected, but in the majority of instance traces of the condition can be found upon both. In its mildest form the disease exists as either a little cracking or a little scaling between the toes. In many instances the so-called soft corn is really due entirely to infection with ringworm parasites. Other common types of lesion are those in which there are either few or many blisters, a diffuse scaly eruption and, lastly, wart-like growths. Any portion of the hands or feet may show one of these eruptions. Rarely they may extend as high as the elbows or knees. When the blisters break, fluid always escapes to the surface and there is a wet oozing surface that usually becomes covered with scabs. Itching is frequently intense.

In a few cases a pus infection occurs and rarely abscesses may develop. These may be upon the hands or the feet or in the lymphatic glands which drain the involved areas. This is the condition sometimes known as "blood poisoning." Fortunately, it is rarely serious.

In many people the disease is by no means a mild one. Out of 161 consecutive cases it was found that 14 were totally disabled and 32 partially disabled. In some instances this disability lasted as long as three months.

In certain cases the body gains some resistance against ringworm organisms, just as it does against many other infectious diseases. However, one attack does not aid in guarding against subsequent ones. It should always be remembered that the ringworm organisms exist deep down in the skin, and this, of course, is the reason why they are so difficult to kill.

A few other conditions may resemble ringworm infection. Yeast may grow between the fingers or toes and give rise to lesions that closely resemble those caused by ringworm. The blisters of poison ivy may have a superficial resemblance. It is often alleged that poison ivy recurs each year upon the hands of some individuals, but in many instances the trouble is due to a ringworm infection. Many persons know that the hand-

ling of the house primrose plant is frequently followed by an eruption of blisters upon the fingers, and more rarely, the hands, wrists and even the feet. This condition too has been mistaken for ringworm. In fact, almost any type of chemical or merchanical irritation may be responsible for skin troubles that closely resemble those caused by ringworm.

The disease never invades the scalp, and it is excessively rare upon either the face or body. Almost all cases can be temporarily cleaned up, and apparently about 50 per cent can really be cured. Because of the great frequency of the disease it is difficult to tell whether a fresh outbreak is due to a recurrence or to a new infection.

An individual affected with ringworm should not use a bath mat. It is much wiser to step upon a section of newspaper and to burn that. Likewise the affected person should be most scrupulous about having his own towels and soap, and his socks, slippers and shoes should be worn by no one else. The use of light canvas slippers in dressing rooms would probably result in a marked decrease in the frequency of the disease. The floors of these dressing rooms should be washed and frequently treated with antiseptic solutions. A person in the active stage of ringworm should certainly sleep alone. Likewise, in the presence of lesions upon the hands, he should not dance, drive a car unless with gloves, hold to car straps or touch any object which others might also touch. It is possible that doorknobs may convey the infection much more frequently than we know.

There is no type of serum which has the slightest effect upon the condition. A person suffering from the disease should soak the affected parts in salt solution at least once a day. This, it will be remembered, is a common type of treatment for infections in all hospitals. Practically every known type of antiseptic has been employed but no one has met with universal commendation. Almost every physician has his own favorite method of treatment. Very light doses of the X-ray frequently exert a most beneficent influence, but they do not prevent the disease from returning. It has frequently been noted that those going to the seashore and exposing themselves to the sun and salt water often recover in a short space of time. This observation has led to the use of ultra-violet light, and, under medical supervision, this remedy is often of great aid. Care must be taken that a marked burn is not produced. Of course, infected stockings, slippers or gloves must never be worn.

Pellagra in Man and Black Tongue in Dogs found to be due to Similar Cause. (United States Public Health Service, Bull. Oct. 8, 1928).

The results of an important series of studies made by Dr. Joseph Goldberger, and his associates, of the U. S. Public Health Service, have recently been published, which indicate that black tongue, a disease of dogs, and pellagra, a disease of man, are practically identical. In connection with such studies an interesting investigation has been made of the pellagra-preventing properties of sixteen foods. These foods are maize, wheat, wheat germ, cowpea, soy bean, milk, butter, cod liver oil, cottonseed oil, lean beef, pork liver, salmon, egg yolk, tomatoes, carrots and rutabagas.

It seems clearly indicated that so far as the studies have been conducted, the foodstuffs that appear to be good sources of the black-tongue preventive also appear to be good sources of the pellagra preventive; those that appear to be poor sources of, or lacking in, the blacktongue preventive likewise appear as poor sources of, or lacking in, the pellagra preventive. This, it should be noted, is not a mere similarity in distribution of the respective preventive essentials among the foodstuffs—it is a similarity in the potency of the action of these foodstuffs in the respective diseased conditions, and, thus, it would seem to constitute evidence of weight pointing to the identity of the preventive essentials, and, therefore, to the identity of blacktongue and pellagra.

The blacktongue-preventive potency of 16 foodstuffs has been studied and correlated to the pellagra preventive potency (or lack of it) of those, eleven in number, for which this was known, with the following results:

Maize, if it contains any, is a poor source of the preventive for both blacktongue and pellagra.

Whole *wheat* contains the blacktongue preventive, but in small amount.

Commercial *wheat germ* contains, and may be rated as a relatively good source of, the preventive for both blacktongue and pellagra.

The *cowpea* contains, but is a poor source of, the preventive for both blacktongue and pellagra.

The *soy bean* contains the blacktongue preventive, but in relatively small amount, appreciably more, however, than the cowpea, but considerably less than the extracted wheat germ. So far as it goes the experience with the soy bean in the human disease is, at least, not inconsistent with that in the experimental disease of the dog.

Milk contains the preventive for both the human and the canine disease, but contains it in relatively small amount.

Butter, while not devoid of it, is a relatively very poor source of the blacktongue preventive, a conclusion that is in harmony with the experience with butter in pellagra.

Cod liver oil would seem very poor in or lacking the preventive for both blacktongue and pellagra.

Cottonseed oil contains little, if any, of the preventive for blacktongue. No specific study of the effectiveness of this oil in pellagra has been made; on the basis of general experience it seems unlikely that this oil contains the pellagra preventive in significant amounts.

Beef muscle is a good source of the preventive for both blacktongue and pellagra.

Pork liver is a good source of the blacktongue preventive; it has not yet been studied in pellagra.

Canned salmon contains the blacktongue preventive. A study of its effectiveness in pellagra is in progress.

Egg yolk contains the blacktongue preventive; specific study of its value in pellagra has not yet been undertaken.

The canned *tomato* contains the preventive for both blacktongue and pellagra, but in relatively small amount.

The *carrot* contains, but is a relatively poor source of, the preventive of blacktongue. Its reported failure in pellagra prevention is consistent with the indications of its feebleness as a blacktongue preventive.

The *rutabaga* turnip contains, but is relatively poor source of, the blacktongue preventive. Its failure in pellagra prevention is consistent with its proverty in the blacktongue preventive.

The pellagra-preventing vitamin is believed to be present in nearly, if not quite, all natural foods except the oils and fats, but in very greatly varying amounts. Thus there is very little in corn meal, white flour, or rice; somewhat more in wheat middlings, and a great deal in lean meat and powdered yeast. Unfortunately, it is not yet known just how much each food contains nor how much the body must have for the maintenance of health. In considering prevention and treatment it is, therefore, necessary to proceed on general principles, guided by such knowledge of relative values as we already have.

Powdered yeast.—Dried pure yeast is the richest "P-P" (Pellagra Preventive) containing food at present known. It is also very rich in protein and in the beriberi-preventing vitamin, so that it should rate high as a food. This yeast is a microscopic plant cell used in baking and brewing. For use as a food the yeast plant should preferably be dead. In the home it may readily be killed by stirring the dry powder into some water and then boiling for about one minute. In the adult, 1 ounce a day (or two teaspoonfuls three times a day) of the pure powdered yeast will of itself suffice to prevent pellagra. It may be taken in any way that is most conventient as, for example, in water, in milk, in tomato juice, in syrup or molasses.

Reviews

The Treatment of Diabetes Mellitus. By ELLIOTT P. JOSLIN, M.D., M.A., Clinical Professor of Medicine, Harvard Medical School; Physician to New England Deaconess Hospital. New (4th) Edition, Enlarged, Revised and Rewritten. Octavo, 1006 pages, illustrated. Lea and Febiger, Philadelphia, 1928. Price in cloth, $9.00, net.

Joslin's work on diabetes is the most important treatment of this subject available to readers in English; and is the most complete and logically arranged book on this subject to be found in any language. It is the only one that presents fully the modern view on diabetes and the diabetic, and the changed point of view is clearly and most ably revealed in the pages of this volume. It is larger by two hundred pages than the last edition, and has been largely rewritten and revised up to the last minute before publication. This, of course, makes a larger book, but it is so full of important and practical knowledge for the practitioner in the treatment of diabetes, that no single page even can be regarded as superfluous. The first three editions of Joslin's work met a great need and acquired at once a great reputation as being the most valuable guide to the treatment of diabetes ever presented to the medical profession. There has been no other book just like it; the author gave his own plan of treatment, in the office, hospital and home, presenting the methods of treatment he has found to give the best results, and attempting to answer all the possible questions that might arise in the practitioner's mind in regard to the care and treatment of the diabetic. The third edition appeared when insulin treatment was in its infancy; today it approaches stabilization, and if in its use the physician applies intelligently the advances in physiology, chemistry and pathology, as well as the evidence derived from statistics, his cases will seldom be severe or even moderately severe, but can usually be made mild. Into the present volume Joslin has put whatever of value he has seen, read or heard during the past five years that might be of value in the treatment of his diabetic patients. He has taken great pains to transcribe his own records in the belief that the accumulation of clinical facts is as important as the presentation of laboratory data. He has brought together from all sources information bearing upon the subject of treatment. Synthalin, myrtillin, the use of liver, the utilization of exercise, the cultivation of morale and advanced ideas upon diet, all are given full consideration. Since the diabetic child now constitutes a very definite problem for the practitioner, the section on diabetes in children has been much increased. The methods for the prevention of coma are given at length, because of the favorable results obtained through them. Arteriosclerosis is discussed in detail, and methods of delaying its approach are suggested, while the delicate handling of the arteriosclerotic diabetic is fully described. The routine removal of infected foci, so dangerous for the diabetic, and the best methods of accomplishing this are indicated. In general, Joslin has sought to emphasize what hurts the diabetic and what helps him, and in each instance to tell how the one state can be avoided and the other secured, as demonstrated in the care and treatment of his own patients. The complications of diabetes, once considered of minor importance are now treated as being of major significance. A new and separate section is given to this subject, as is also the case in the discussion of Diagnosis, Prevention, Symptomatology, Treatment of Acid Intoxication and Coma, Arteriosclerosis and Heart Disease, Surgery and Diabetes, Pregnancy, Diabetes in the Old, Renal Glycosuria, Glands of Internal Secretion and Diabetes, etc. The sections on the examination of the urine,

blood, respiration, diet, physiology, chemistry and pathology have been much enlarged, and much valuable matter added. Modern theories of diabetes are given adequate attention, and the present drift of thought on this disease shown. The greatest value of Joslin's work is found in its therapeutic and clinical discussions; it is weakest in its sections on etiology and pathology. From the former standpoint, the book is one that every practitioner should possess, or at least read; he will not find elsewhere such an assemblage of important facts bearing upon the care and treatment of the diabetic.

Recent Advances in Diseases of Children. By WILFRED J. PEARSON, D.S.O., M.C., D.M., F.R.C.P., Physician in Charge of Children's Department, University College Hospital; Physician to Out-patients' Hospital for Sick Children, Great Ormond Street; Physician to Cheyne Hospital for Children, Chelsea; Sometime Physician to Children's Department, Charing Cross Hospital; and W. G. WYLIE, M.D., M.R.C.P., Physician to Out-patients' Hospital for Sick Children, Great Ormond Street; Assistant Physician to Children's Department, Westminster Hospital; Assistant Physician to the Hospital for Epilepsy and Paralysis, Maida Vale. 593 pages. 18 plates and 32 figures. P. Blakiston's Sons and Company, Philadelphia, 1928. Price in cloth, $3.50.

The authors have attempted to write a book on disease in children dealing with the subject primarily from the clinical standpoint, including such important recent additions to scientific knowledge as, in their view, have a bearing on the clinical study of disease in childhood. They have aimed at presenting the ailments of the young in the form and manner in which they are met in everyday practice, and to formulate principles for solving the problems of disease rather than merely to collect and record the work of others. This has necessitated statements of personal opinion and interpretation; they have expressed things as they see them, and have tried to prospect disease on simple lines, and to avoid being hidebound by conventional views. A survey of the material in the book shows that its title is a misnomer; there is more old stuff than new in its pages, and the material is not complete and is poorly arranged. It is of the manual type, and it is difficult to see just what useful purpose this volume plays as compared to any one of the better and more complete textbooks on children's diseases.

Bronchial Asthma. Its Diagnosis and Treatment. By HARRY L. ALEXANDER, A.B., M.D., Associate Professor of Medicine in the Washington University Medical School, St. Louis, Mo.; Associate Physician to the Barnes Hospital, St. Louis, Mo. 171 pages. Lea and Febiger, Philadelphia, 1928. Price in cloth, $3.00.

During the last decade there has been aroused a greatly increased interest in asthma due to the discovery that bronchial asthma is an expression of human hypersensitiveness. The emphasis on the phase of the subject has tended to obscure other important studies that had been previously made. The purpose of the present book is to present an outline of bronchial asthma as a clinical expression of a constitutional defect and not as a disease entity. There are eight chapters and an appendix. These, in succession, deal with: The Historical Considerations and Definition of Bronchial Asthma; Anatomical Considerations, Pathogenesis of Bronchial Asthma, Pathological Findings in Bronchial Asthma, Immunological Aspects of Bronchial Asthma, Clinical Aspects of Bronchial Asthma, Complications and Prognosis, Treatment and Diagnostic methods. The chapter on treatment deals at length with the modern methods of therapy; the book aiming at completeness of detail in regard to this phase of the subject alone. References are very fully given at the end of the chapters. This little volume constitutes a valuable monograph on this subject and contains most of the known facts concerning the phenomenon of asthma. Since this clinical entity is so frequently seen in general practice, the information given here will be very helpful to the general practitioner and internist.

Diabetic Manual for Patients. By Dr. HENRY J. JOHN, M.A., F.A.C.P., Director of the Diabetic Department and Labora-

tories of the Cleveland Clinic. 202 pages, 42 illustrations. The C. V. Mosby Company, St. Louis, Mo., 1928. Price in cloth, $2.50.

This manual has been written for the diabetic patient in the hope that it will aid him in successfully combatting his disease. It contains a simple explanation of the underlying causes of diabetes and gives careful, explicit directions for its treatment, which, while warning him of his constant need for medical supervision, will nevertheless make the diabetic confident of his own ability to care for himself and to lead a comfortable normal life. There are eighteen chapters entitled respectively: Introduction, What is Diabetes, The Role of Food in the Causation of Diabetes, The Relation of Obesity to Diabetes, Blood Sugar, Urine Sugar, Treatment of Diabetes Before the Discovery of Insulin, Treatment of Diabetes Since the Discovery of Insulin, Is there any Cure for Diabetes, Diabetes in Children, Diabetes in Persons of Advanced Years, Diabetic Arithmetic, Food Tables, Rôle of Insulin in the Treatment of Diabetes, Insulin Reactions, Acidosis and Coma, Hygiene for the Diabetic Patient and The Physician and the Patient. Following these there are two Appendices, one on Food Charts and one on Sample Menus. These chapters are written in a clear and concise style and embody the most important facts and considerations on diabetes that should be known to every diabetic. It is absolutely necessary for the latter to know the facts and to understand the nature of the disease and the principles of its treatment, if he is to cooperate successfully with his physician in the treatment, and without such cooperation the treatment will be a failure. This little volume offers to the layman just what he should know on his side in coping with the problem of treatment, and will be of great service to every diabetic who uses it.

Recent Advances in Physiology. By C. Lorrat Evans, D.Sc. (Lond.), M.R.C.S., L.R.C.P., F.R.S., Jodrell Professor of Physiology, University College, London. Third Edition. 403 pages, 86 illustrations. P. Blakiston's Son and Company, Philadelphia, 1928. Price in cloth, $3.50.

This is a new revised edition of what the author has called an Elementary Textbook of Advanced Physiology. Its aim has been to present to the student who has worked through the ordinary textbook an account of some of the problems with which physiologists have been concerned in recent years, and thus to serve not only to enrich the student's knowledge as regards subjects of contemporary interest, but also to form a convenient bridge by which he may, if he feels so disposed, pass more easily into the original literature of these subjects. Two new chapters on "Excitability and Chronaxie" and "The Nervous Impulse" have been added to this edition; and three chapters have been omitted. All of the remaining chapters have been considerably revised. Much of the new material is based upon articles in the Physiological Reviews, and the literature reviewed is indexed at the end of each section. The subjects discussed, in addition to those mentioned above, are: The Mechanism of Tissue Oxidations, Chemistry of Muscular Contractions, Physical Aspects of the Physiology of Muscular Contraction, Application of these Researches to the Physiology of Muscular Exercise in Man, Mechanism of Postural Reflexes and the Function of the Labyrinth, Conditional Reflexes, The Active Principle of Some Endocrine Organs, Thyroxin, Pituitary Principle, Insulin-Parathyroid, Origin of Blood Cells and Their Relation to the Connective Tissues, Carriage of Carbon Dioxide by the Blood, Reaction of the Blood and the Capillary Circulation. These sections are more or less elaborate abstracts of some of the important articles embodying physiologic research during the last several years. They are in part illustrated by reproductions of the original figures given in these articles. The book is, therefore, of convenience in presenting such a group of well-abstracted recent investigations in physiology; and the teacher and student in physiology will find the volume a time-saver in this respect.

Laboratory Manual of the Massachusetts General Hospital. By Roy R. Wheeler, M.D., and F. T. Hunter, M.D., Second Edition, Enlarged and Thoroughly Revised. 101 pages. Lea and Fabiger, Philadelphia, 1928. Price in Cloth, $1.75.

The first edition of this work, published by the Massachusetts General Hospital in 1922, was prepared by a group of medical internes. Intended originally as a pocket outline of the routine laboratory work done by internes in the hospital, and for their guidance, it was soon found to be of interest to a much wider group; students and practitioners. A limited printing was therefore soon exhausted and a second edition undertaken. The original text has been carefully checked and in many instances revised by Drs. Wheeler and Hunter. Certain procedures no longer used have been omitted. New laboratory tests such as the Rosenthal liver function test and the Van den Bergh test have been included. The greater portion of the chapters on Therapeutic technique and prophylactic measures is new. The procedures described are those actually in use today in the Massachusetts General Hospital and are sanctioned by its staff as those which daily experience has shown to be best suited for their intended purpose. There are six chapters entitled: Laboratory Work Indicated, Examination of Specimens, Collection of Specimens, Special Diagnostic Procedures, Therapeutic Technique and Prophylactic Measures. These are followed by an Appendix and Index. This is a very practical and useful laboratory manual for the medical student and interne. The methods are well-chosen, they are clearly and concisely described; and the small size and limp binding make it a very convenient volume for the pocket.

Criteria for the Classification and Diagnosis of Heart Disease. By a Committee, Joseph H. Bainton, M.D., Robert L. Levy, M.D., W. C. Munly, M.D., M.C., U.S.A., Harold E. B. Pardee, M.D., Chairman Appointed by the Heart Committee of the New York Tuberculosis and Health Association, Inc. Arranged in Conformity with the Nomenclature for Cardiac Diagnosis Approved by the American Heart Association. 92 pages. Paul B. Hoeber, Inc., New York, 1928. Price in cloth, $1.50.

Uniformity of nomenclature and uniform criteria for using the nomenclature are necessary for the effective study of any disease, in order that observers in different places may know that they are using the same terms for the same conditions. Such labels, or nomenclature, should as far as possible descriptive and descriptive only of the conditions which they indicate. The criteria should be precise definitions of the states named in the nomenclature. In 1923 the Committee on Cardiac Clinics of the New York Heart Association prepared a nomenclature covering diseases of the heart and blood vessels, which it adopted, and later, with certain changes, was adopted by the American Heart Association and has been used with success in all parts of the country. It became obvious that after the completion of the nomenclature the next need was the establishment of definite criteria for diagnosis. A committee was appointed for this purpose, and after a careful consideration extending over two years produced this book, which has been approved and adopted by the Heart Committee. It is hoped that these criteria proposed by experts will prove to be an extremely practical guide for correct diagnosis and hence for proper management and treatment, and that this book may serve as a manual for the practicing physician and of great aid in diagnosis. The Heart Committee realizes that thoughtful use of the criteria will undoubtedly suggest modifications and hopes that all who use the book will not hesitate to send criticisms and suggestions for its improvement. After all, any committee of this kind, can only use the data available at the given time of compilation, and the difficulty with criteria of this kind is that they very soon fall behind the actual knowledge of the time. Criteria must be categorical and brief, omissions, therefore, are bound to occur. On page 23, under Toxic, the toxic action of diphtheria upon the heart is mentioned, but not that of typhoid fever, in severe cases of which myocardial lesions comparable in severity to those of diphtheria are common and very important clinically. Typhoid fever is apparently not mentioned in the book as a factor in the production of cardiac disease. The anatomical criteria given are inadequate in some instances, as, for example, under Acute Myocarditis, on page 40, which is both inadequate and inaccurate, in that it em-

phasizes only the rheumatic form. Under adherent pericardium surely the clinical and anatomical syndrome of Pick's disease should have been mentioned, as this is usually the only clinical foundation for a diagnosis of synechia cordis. Why also, should not this term have been included in the nomenclature and criteria? The physical signs of aortic syphilis are not up to date. The criteria of congenital abnormalities are very inadequate from the diagnostic standpoint, and consultation with Maude Abbott's Monograph is advised. The reviewer realizes the impossibility of completeness in a categorical list of criteria, but if these are to be used as a manual for diagnosis, a greater perfection of completeness in the most essential diagnostic data must be attained than is shown here.

College News Notes

OBITUARY

Dr. Henry Green Brainerd, Los Angeles, California, (Fellow, April 3, 1922). Died July 23, 1928; age, 76 years.

Dr. Brainerd received his Bachelor of Arts Degree from Dartmouth College and his Degree of Doctor of Medicine from the Rush Medical College in 1827. He did postgraduate study at Bellevue Hospital Medical College, of New York, New York Postgraduate Medical School and Hospital and in London. He was Assistant Superintendent of the Iowa Hospital for Insane from 1878-86, Superintendent of the Los Angeles General Hospital from 1882-92, Professor of Mental and Nervous Diseases at the University of Southern California College of Medicine at Los Angeles from 1887-1911 and Dean of the Faculty of Medicine of the same institution from 1889 to 1902. He was Consultant to the California Lutheran and St. Vincent's Hospitals from 1910 to the date of his death, and Consultant to the Methodist and Hollywood Hospitals since 1920. He was chairman of the Draft Board during the war.

Dr. Brainerd was one of the most capable and best beloved physicians in Los Angeles. He always gave his time and strength for the betterment of medicine, and he was the first Neurologist in Los Angeles. Dr. Brainerd was President of the University Club, twice President of the California Medical Association, and had been President of all the local medical organizations.

About three hundred physicians gave him a testimonial dinner on May 23d, in honor of his seventy-sixth birthday. He has been an active Fellow of The College since 1922 and offered valuable suggestions and help on many occasions.

Dr. Ralph H. Hunt, East Orange, New Jersey;; (Fellow, February 24, 1926); died July 9, 1928, of carcinoma of the intestine;; aged 59.

Dr. Hunt received his Bachelor of Arts and Master of Arts from Bowdoin College, and graduated from the Medical School of the same institution in 1894. He was a member of the Psi Upsilon and the Phi Beta Kappa fraternities.

From 1896-99, Dr. Hunt was Assistant Surgeon to the National Soldiers Home at Togus, Maine; from 1894-95, he was House Surgeon at Maine General Hospital; from 1899-1900, he was a member of the staff of the Mothers' and Babies' Hospital of New York. His more recent appointments were—Chief of the Tuberculosis Clinic at the Orange Memorial Hospital Outpatient Department 1905 to date, Attending Physician Orange Memorial Hospital 1910 to date, Chairman Advisory Board, Essex County Tuuberculosis Sanatorium 1922 to date.

During the War, Dr. Hunt was Captain in the Medical Officers Training Corps and later Lieutenant Colonel in the Medical Corps of the U. S. Army, American Expeditionary Forces.

Dr. Hunt was ex-President of his local county medical society, a member of the Maine State Medical Society, of the American Medical Association, of the American Public Health Association and of the National Tuuberculosis Association. Dr. Hunt was known as one of the leading internists of New Jersey, actively engaged in hospital and educational medical work. His standing in the community, both as a citizen and as a physician, was of the highest possible order.

Dr. George E. Brown (Fellow), Rochester, Minn., recently addressed the Region Medical Society on "Essential Hypertension."

Dr. Louise Taylor Jones (Fellow), Washington, D. C., was elected President of the Medical Women's National Association at Minneapolis during June.

Dr. John A. Toomey (Fellow), Cleveland, Ohio, has been promoted to Assistant Professor of Pediatrics for three years at Western Reserve University School of Medicine.

Dr. Wm. C. Rucker (Fellow), in command of the U. S. Naval Hospital No. 14, at New Orleans, and Dr. Wm. M. Simpson (Fellow), Dayton, Ohio, Pathologist to the Miami Valley Hospital at Dayton, appeared on the program to lead discussions at the annual meeting of the Medical Society of Wisconsin at Milwaukee on September 12-14.

Dr. Frederick J. Epplen (Fellow), Seattle, Wash., was elected Secretary of the Pacific Northwestern Medical Association at its seventh annual meeting in Tacoma, July 5-7.

Dr. William Engelbach (Fellow), St. Louis, conducted a clinic on July 19 before the Twin Lakes District Medical Society at Twin Lakes, Iowa.

It was recently announced that Dr. Engelbach after more than twenty years practice in St. Louis, will take a leave of absence for a year or more to write a system on Internal Secretions. For many years Dr. Engelbach was Professor of Medicine at St. Louis School of Medicine and Chief of Staff at the St. Johns Hospital. He is now a member of the staff of the City Hospital, Missouri Baptist Sanitorium, the Maternity Hospital and the new Jewish Hospital. He is a former President of the American Association for the Study of Internal Secretions and of the St. Louis Medical Society.

Dr. John H. Musser (Fellow), New Orleans, La., addressed the Homochitto Valley Medical Society at Natchez, Miss., July 12 on "Euphyllin."

Dr. Ray M. Balyeat (Fellow), Oklahoma City, Okla., addressed the Southeastern Oklahoma Medical Association at McAlister, June 20, on "Diagnosis of Pulmonary Tuberculosis."

Dr. Wm. C. Cheney (Fellow), Memphis, Tenn., addressed the Memphis and Shelby County Medical Society, July 5 on "Diagnosis and Treatment of Cirrhosis of the Liver."

Dr. Oliver T. Osborne (Fellow), Professor of Therapeutics, Emeritus, Yale School of Medicine, New Haven, Conn., and a member of the Board of Governors of The College representing Connecticut, has just issued through the American Medical Association the eighth edition of his book, "Handbook of Therapy."

Dr. M. L. Turner (Fellow), Berwyn,

Maryland, has from time to time contributed valuable collections to the new library of The American College of Physicians. Dr. Turner's keen interest in this movement has lead to several other contributions. In a recent letter addressed to The College, Dr. Turner wrote, "Personally, I think The College should have a general library, part exclusively the writings of Fellows and the remainder consisting of books by general writers. As every Fellow has a library, many of which were started before The College, the above arrangement would encourage him to will his medical books to this College." Such a plan of procedure would not only build up a valuable library in The American College of Physicians but provide a memorial to the member and create a useful purpose for his books.

Dr. William R. Bathurst (Fellow), and Dr. Oliver C. Melson (Fellow), both of Little Rock, Ark., and Dr. Henry Rudner (Fellow) of Memphis, Tenn., recently addressed the First Councilor District and Northeast Medical Society at its meeting at Jonesboro, Ark.

Dr. Williams Engelbach (Fellow), St. Louis and Dr. Isadore D. Bronfin (Fellow), Denver, addressed the fifty-eighth annual meeting of the Colorado State Medical Society at Colorado Springs, September 11-13, on "Endocrine Disorders, Diagnostic Clinic," and "Diognosis of Tracheobronchial Tuberculosis in Childhood," respectively.

Dr. Rudolph W. Arndt (Fellow), Denver, is one of a group who conducted a symposium on pyelitis in connection with the same meeting.

Dr. Grant H. Laing (Associate), Chicago, has been promoted to Assistant Clinical Professor, Department of Medicine, Rush Medical College, as of July 1, 1928.

Dr. Edwin W. Gehring (Fellow), Portland, Maine, read a paper on John and Wm. Hunter before the meeting of the York County Medical Society at Dunstan, Maine, July 12.

Dr. Edward L. Tuchy (Fellow), Duluth, and Dr. Henry L. Ulrich (Fellow), Minneapolis, assisted in the conduct of a heart symposium before the Annual Meeting of the Northern Minnesota Medical Association at Fergus Falls on August 20 and 21.

Dr. Edward J. G. Beardsley (Fellow), Philadelphia, delivered the address at the graduating exercises of the Interne Staff of the Philadelphia General Hospital on June 26.

Major General M. W. Ireland (Fellow), Surgeon General of the U. S. Army, recently received decorations awarded during the World War. A considerable number of medals, diplomas and decorations bestowed by foreign government on army officers during the World War, and even previous thereto, were not distributed at the time because army officers heretofore have been prevented from receiving any decoration from foreign countries. By authority of an act of Congress, approved in May, these accumulated decorations have now been distributed.

Dr. Howard S. Brasted (Fellow), Hornell, New York, has recently been appointed to the Consulting Staff of the Steuben Sanitarium, an old and well established institution with a record of forty years in the treatment of medical and nervous cases. Dr. Brasted's father held a similar position during his lifetime.

Dr. William L. Holman (Fellow), Toronto, was recently appointed professor of bacteriology and associate director of applied bacteriology on the faculty of medicine of the University of Toronto.

Dr. George H. Whipple (Fellow), Rochester, N. Y., was appointed Chairman of the Committee on Visual and Motion Picture Education at the meeting of the meeting of the Board of Trustees of the American Medical Association at Chicago, September 7.

At the meeting of the Fourth Councilor District Medical Society of Wisconsin at Lancaster, Wis., August 6, Dr. Rock Sleyster (Fellow), Wauwatosa, spoke on "Psychoneuroses and Mental Disorders" and Dr. Ray C. Blankinship (Fellow), Madison, spoke on "Constipation."

Dr. Charles W. Stone (Fellow), Cleveland, President of the Ohio State Medical Association, addressed the Fifth District meeting of that society at Cleveland, September 21. Dr. Clyde L. Cummer (Fellow), Cleveland, was in charge of the general arrangements for the meeting.

Dr. J. B. McElroy (Fellow), Memphis, addressed the meeting of the Montgomery County Medical Society at Dunbar Cave, Tenn., on August 16.

Dr. Noble Wiley Jones (Fellow), Portland, Oregon, conducted a medical clinic on June 7 at the general hospital at Pocatello, Idaho, where the Pocatello County Medical Society acted as host to a large number of physicians of southeastern Idaho.

Dr. Lewis B. McBrayer (Fellow), Southern Pines, N. C., is a member of the committee administrating the funds of the North Carolina Medical Foundation, created by the Medical Society of the State of North Carolina. "The purpose of the foundation is to encourage gifts for charitable purposes connected with the activities of the medical society." It is understood that this fund shall be available for "the promotion of medical science, the encouragement of postgraduate medical instruction, the correlation of medical activities, the education of the public about medical matters, the helping of indigent physicians and their families, and for any other object that may reasonably be construed as promoting medical science and practice in the state."

Dr. Walter M. Simpson (Fellow), Dayton, Ohio, delivered a lecture under the auspices of the Mayo Foundation at Rochester, Minnesota, June 22, entitled "Experiences with Fifty-three Cases of Tularemia Occurring in Dayton."

On June 6, Bucknell University conferred the honorary degree of Doctor of Science at its commencement on Dr. S. Calvin Smith (Fellow), Philadelphia, Pa.

Dr. William S. Thayer, Baltimore, Dr. Julius H. Hess, Chicago, and Dr. Stuart Pritchard, Battle Creek, are Fellows of The College who were invited speakers at the joint annual meeting of the Idaho, Montana and Wyoming State Medical Associations at the Canyon Hotel in Yellowstone National Park, Auugust 27-29.

Dr. A. S. Warthin, Editor of the Annals, spent the month of August in the Hawaiian Islands. At a special meeting of the Honoluulu Medical Society he gave an address on the Pathology of Latent Syphilis. Cooperation was also secured with Drs. Arnold, Fennell and Larsen, of Honolulu, for the carrying-on of an investigation of latent syphilis in the native and Oriental races of the Island, in connection with the investigations on latent syphilis to be carried out under a grant from the National Committee on Syphilis at the Pathological Laboratory at the University of Michigan.

Dr. Russell C. Pigford (Associate) has resigned his post as full-time instruuctor in the Department of Medicine of Tulane University, New Orleans, to engage in private practice in Tulsa, Oklahoma.

Dr. Lea A. Riely (Fellow) and family of the clinics of France. Dr. Riely is pro-Oklahoma City were recently on a tour of fessor of medicine at the University of Oklahoma Medical School. He reports that the Medical Department of the University of Oklahoma has heretofore functioned as two separate units, the first and second years with the University at Norman, Okla., and the second and third years at Oklahoma City. In September the Medical Department will open in a newly erected building in Oklahoma City with the University Hos-

pital and the Crippled Children's Hospital as teaching hospitals.

Dr. H. Sheridan Baketel (Fellow), Jersey City, N. J., and Professor of Preventive Medicine and Hygiene in the Long Island College Hospital, Brooklyn, was re-elected President of the Medical Alumni Association of Dartmouth College at the time of the last Commencement. He has occupied this position since 1923.

Dr. C. S. Danzer (Fellow), Brooklyn, N. Y., delivered an address on "Cardio-Vascular-Renal Diseases from an Insurance Standpoint" at the convention of Medical Examiners of the Judea Life Insurance Company on September 9 at the Waldorf Astoria Hotel, New York City. Dr. Danzer is also scheduled to read a paper on 'Certain Constitutional Factors in Peptic Ulcer" before the section on Gastro-Enterology of the Southern Medical Association in Asheville, N. C., November 14.

Under the Presidency of Dr. Arthur C. Morgan (Fellow), Philadelphia, the Pennsylvania State Medical Society held its seventy-eighth annual meeting at Allentown, Pa., October 1-4.

Dr. William S. Thayer (Fellow), Baltimore, President of the American Medical Association, and Dr. Henry A. Christian (Fellow), Boston, delivered addresses at the meeting.

Dr. George E. Pfahler (Fellow), Philadelphia, representing the American Roentgen Ray Society, Dr. Edwin C. Ernst (Fellow), St. Louis, representing the Radiological Society of North America, Dr. B. H. Orndoff (Fellow), Chicago, representing the American College of Radiology, and Dr. Albert Soiland (Fellow), Los Angeles, representing the American Radium Society, were official delegates from the United States to the International Radiological Congress at Stockholm, Sweden, during August.

Dr. Charles H. Neilson (Fellow), St. Louis, has been appointed Associate Dean of the St. Louis University School of Medicine to succeed the late Dr. Don R. Joseph. Dr. Neilson is President of the St. Louis Medical Society, a graduate of the Rush Medical College, and for a number of years has been a member of the staff of the Medical School of which he now becomes Associate Dean.

Under the Presidency of Dr. Herman N. Bundesen (Fellow), Chicago, the American Puublic Health Association held its fifty-seventh annual meeting in Chicago, October 15-19. The American Social Hygiene Association and the American Child Health Association held their meeting jointly with the American Public Health Association.

DIRECTORY OF NEW MEMBERS

Mr. E. R. Loveland, Executive Secretary of The College, 133-135 S. 36th Street, Philadelphia, Pa., announced the completion and distribution of the new SUPPLEMENT TO THE 1927-28 YEAR BOOK of The American College of Physicians on September 10. A considerable part of the summer months were spent by Mr. Loveland and his staff in preparing this directory of new members to supplement the 1927-28 Year Book that was published during the summer of 1927. The complete Year Book is printed every second year, and a Supplement is published during the intervening year.

This Supplement contains the names and biographical detail of two hundred and eighty-eight new members, two hundred and thirty-seven Fellows and fifty-one Associates. It also contains: names of present officers and personnel of the various Boards and Committees ; list of deceased members; resignations accepted; list of medical schools of the United States and Canada; college, professional and honorary fraternities. The same policy with regard to the type of biographical detail is used in this Supplement as used in the last Year Book. Before the publication of the next regular edition of the Year Book, the Committee will duuly consider several recommendations now on file for revision of the character and scope

of information published. Naturally, it was impossible in this Supplement to make corrections or additions to biographical data printed in the 1927-28 Year Book proper.

An examination of the new elections will disclose that from July 1, 1927, to July 1, 1928, The College has had a most successful and commendable growth. Officers and members of the Board of Regents and the Board of Governors have worked earnestly, enthusiastically, and with a vision of the responsibilities of The College as "the one national organization that offers useful service to all Internists and to the general cause of Internal Medicine."

Any one desiring to secure a copy of the Supplement may send an order with enclosure for Fifty Cents to the Executive Secretary. Complimentary copies were distributed only to paying members in good standing.